

**"fy;yhypd; g[il mkh;e;J
ehd; kiw MW – m';fGjy;
fw;w nfs;tp ty;yhh;fs; ehy;th;f;Fk;
thf;fpUe;j g{uzkha;
kiwf;F mg;ghyha; vy;yhkha; my;yt[kha;
,Ue;jjid ,Ue;jgo ,Ue;J fhl;o
brhy;yhky; brhd;dtiu epidahky; epide;J
gtj; bjhl;f;if bty;thk;"
- jpUtpisahly; g[uhzk;**

INTRODUCTION

'Man' is the most wonderful creature of 'Nature'. When discussing the issue of health, it is common for people in all cultures to talk just about their body, it's ailments and the medicines they right to treat these ailments.

However health is not merely a matter of the state of the body, since it is obvious we are much more than just this material forms. A system of health that only takes into account the structure and the functioning of the physical body can not effectively address human health in its totality. "Siddha" is not just a medical approach to health, rather it is a complete philosophy of life.

Siddha gives equal importance to the parts of life which are more subjective and intangible as well as those, which are objective and material, those aspects we can observe with out physical senses. In fact it is a view of life which understands that the non-material components of our life, our consciousness, mind, thoughts and emotions - animate and direct our more physical parts. In "Siddha" system of medicine we can save our body from diseases and attain our soul to the "Nature".

The Siddha system of medicine is the ancient system of medicine, which has been presented by the 'Siddhar'. The unique nature of this system is its continuous

service to humanity in computing diseases and in maintaining its physical, mental and moral health, while many of these contemporaries had completed their forces long ago. This system of medicine is purely scientific and peculiar complex system of science and philosophy.

Siddha provides rational methods for the treatment of many diseases, which are considered to be obstinate and incurable in other system of medicine. It focuses on maintaining a balanced integrated relationship among them. In balance, whether physical, mental or emotional arises when there is a disconnection between the subjective and objective areas of life. The term "Siddhar" has been derived from the word "Siddhi" which literally means accomplished, achieved or perfected success and so it refers to one who had attained his end in spiritual goal.

They were mystics, yogis, poets devotees and medical men of various combinations. More over they labored much in the field of alchemy and medicines and also attained success in Yoga and Philosophy.

They were of extra sense perception and highly spiritual, having complete control over all the elements. They had full awareness of the nature and activities of all objects on the - plants and of all times past, present and future.

They were said to be mostly "Tamilians" who were familiar with wonderful properties of rare drugs peculiar to South India in their both physiological and psychological aspects. They choose not only to keep their bodies and souls together but also prolong their lives to a considerable extend. Their motive life was the service of 'God' through humanity. The greatest problem of the world today is how to save the human race from extinction through degeneracy.

The "Siddha medicine" plays a vital role in presenting human life on the earth with a robust physique. Health is a positive states of well being that is to say every organ of the body in functioning normally and in prefect functional balance with every other organ. The condition of the locomotor system is also one of the state of health.

The locomotor system includes the muscles, bones, joints and soft tissue structures such as Tendons, Ligaments that are controlled by "Nervous System". In the recent time the life threatening inability of locomotor organ is mainly by "Paralysis" due to unscheduled food habits, various diseases, alcohol, injury to nervous system, viral infections etc.

The "Siddhar Yoogi" in his classification of eighty vaadha diseases describes the clinical entity "Pakkavaadham". Most of the clinical features of "Pakkavaadham" in siddha medicinal aspect are closely resembled to that of "Hemiplegia" in modern medicinal aspect. The comparative study with other systems of medicines and an analysis based on the results of those studies would help us to find out the oddity, Particularity, Speciality, Pecularity, Singularity and Individuality of Siddha system of medicines.

The modern studies of Siddha system of medicine bring to light not only the high level of medical knowledge it had, but also where they missed and how they missed and reveal many of the forgotten fundamentals the proper appreciation and development which make this system grow to magnificent dimensions. Since older days, in the treatment of Vaadha diseases has very much popular and effective.

This is one of the miracles of Siddha system of medicine. The treatment in its only mineral way is whatever its undreadful complications easily administrations the manasilai by its proper purification, it looses its toxicity and free from toxic effects, side effects, adverse reactions and dreadful complications.

The author of this dissertation work has selected "Pakka Vaadham" under the Vaadha diseases explained by "Siddhar Yoogi" in Yoogi Munivar Vaidhya Chinthamani Perunool - 800 and a clinical entity comparable to "Hemiplegia" in modern medicine. The incidence of this disease as mentioned above is increasing so the author has tried to formulate a treatment methodology to treat this disease.

The author's choice of drugs for the clinical study were

I) Manosilai kattu chenduram - Internally

(Ref - The Pharmacopeia of Siddha Research Medicine)

II) Malkingini Thylam - Externally

(Ref – **rpfpr;rhuj;djPgk;**)

The drugs were prepared personally by the author and tried in 20 selected cases of "Pakka Vaadham". The clinical study was undertaken in the Post-Graduate Department of Sirappu Maruthuvam, at Govt. Siddha Medical College, Palayamkottai and another 20 cases were also treated with the trial drug in the Out - Patient ward.

Appreciation and appropriate application of Siddha Science are sure to give us all a happy and a harmonious life, and the study proves that, the "Siddha System" of medicines cure not the diseases by dramatically but by scientifically.

rkh;g;gzk;

**“fy;yhg; gpiHa[k; fUjhg; gpiHa[k; - frpe;JUfp
epy;yhg; gpiHa[k; epidahg; gpiHa[k; - epd;le;b;Gj;ij
brhy;yhg; gpiHa[k; Jjpahg; gpiHa[k; bjhHhg;
gpiHa[k;
vy;yhg; gpiHa[k; bghUj;jUs;tha; fl;rp Vfk;gnd”
- gl;odj;jhh;**

AIM AND OBJECTIVES

When one takes his first breath in this world, he faces so many healthy problems up to his last breath. If the world is to survive, the human beings should live with all happiness, without and physical and mental hazards. Basically if life is to get the light for living, it should attain "Siddhi". If the body is to be dynamic, it should be administered necessary medicines, and if the world is to be rich it should possess gold. The Siddhars prescribed the ways and means to attain the "Siddhi" by means of healthy body. On searching medicines to struggle with diseases they selected medicines whatever it may be; he should be cured from the diseases without dreadful effects and recurrence.

The importance of the Siddha medicine is the healing process by the way of natural. Nowadays the paralysis of the locomotor system is the major and unavoidable problem which occurring in middle and elderly persons mostly due to Hypertension, Diabetes mellitus, Syphilis, Trauma, Tumours, Viral infections and Epilepsy. The locomotor system is the important for one who is willing to live independently. The locomotor system is responsible for an individual's routine works and occupational works. It must be normal to maintain a good health. The locomotor system without any function is like a body without soul.

"PAKKA VAADHAM" is the survival threatening disease challenging to the human race, not only that its recurrence of illness limited even after the proper treatment in other systems of medicines rather than "Siddha". The author should take a clinical study on "Pakka Vaadham" with more eagerness that has been more useful to human race.

A "MANOSILAI" (Red Orpiment) which is one of the drug mentioned in so many

Siddha literatures and is indicated as an Anti-Vaadha drug in "The Pharmacopeia of Siddha Research Medicine" Dr.S.Shunmugavelu literature indicates Chenduram formed medicine namely, "Manosilai Kattu Chenduram" of Internal medicine to treat the causes of "Pakka Vaadham" strongly and specifically.

The drugs Jathigai, Valuluvai, Palingu Champirani, Alisi Vithai, Chithramoolam, Jathipathri, Kirampu, Kungumapoo which are Alterative, Nervine tonic and having Anti - Vaadha activity as external application in the "Thylam" form of medicine called "Malkingini Thylam" are indicated in "Sikicharathnadeepam" preferably.

The clinical features of "PAKKA VAADHAM" are comparable to those of "HEMIPLEGIA" in modern medicine. The clinical study was done in twenty selected cases of both sex and they were treated in the In-Patient ward and another twenty selected cases in the Out - Patient ward of the Post - Graduate Sirappu Maruthuvam Br - III, Govt. Siddha Medical Collge, Palayamkottai. At the time of Discharge the patients were advised to come the Out Patient department for follow up study and to know any recurrence of illness.

The main aim of the present study on "PAKKA VAADHAM" is to collect authentic measures and review the ideas mentioned in ancient siddha literatures about this malady.

- (i) To control the pre-disposing factors.
- (ii) To know the efficiency of the trial drugs.
- (iii) To expose the efficiency of Siddhar's principles.
- (iv) To have an idea about the prevalence of "PAKKA VAADHAM" with reference to sex, age, Socio-Economical status, Family history, Habits, Trauma, Thinaigal, and Paruva Kaalangal.
- (v) To know how the disease alters the normal system of body under the topics Mukkutrangal, Poripulangal, Udalkattugal, Gnanendhriyangal, Kanmaendhriyangal, Vinganamayakosam, Manomayakosam, and know how it is diagnosed by Envagai thervugal, Neerkuri and Neikuri.

- (vi) To know the extend of the correlation of aetiology, classification, symptomatology, diagnostic methods and the line of treatment on compare with allopathic system of medicine.
- (vii) To have clinical trial on patients with the trial drugs "Manosilai Kattu Chenduram" Internally and "Malkingini Thylam" Externally in the treatment of the disease "Pakka Vaadham".
- (viii) To use "Thokkanam" an important rehabilitating method invented by ancient Siddhars with the use of medicated oils.
- (ix) To use "Yoga" a yogic principle adopted by "Siddhars" which helps the soul to reach the nature.
- (x) To know how the food habits alter the normal health and how the "Dietetic regimen" which is well known by the people as "Patthiyam" is helping in the Siddha treatment.
- (xi) To use available modern parameters in the investigation side to confirm and follow the progress of the patients.
- (xii) To elicit Biochemical analysis and Pharmacological actions of the trial drugs.
- (xiii) And to know the Toxic effects of the trial drugs if any clinically.

SIDDHA ASPECT

The siddha system of medicine deals each and every corner of science, when viewed in its proper perspective, the body is nothing less than an evolutionary wonder, an unbelievably complex instrument capable of supporting limitless possibilities for human life.

This marvel nature can be studied from many points view, the conceptual model that "Siddha" uses to understand the principles of nature functioning is called "Pancha Butham" or the "Theory of Five Elements". This theory serves as the foundation for all of Siddha's diagnostic and treatment modalities and has allowed physicians for millions of years who successfully detect and treat imbalances any where in human life.

The Ancient Siddha literatures classify the diseases into the number of 4448. The classification is based on the "Three Dosha Theory". In such a way Eighty types vaadha diseases are classified and "Pakkavaadham" is one of them. Before reviewing the specific science and symptoms of "Pakkavaadham" the details of vaadham are important and basic.

DEFINITION:-

Vaadham is one of the Three humours namely Vaadham, Piththam, and Kabham and it consists of Vayu (Air) and Aahaayam (Sky), the two of five elements i.e., Pancha Butham.

Elements which become THODAMS in the Body

Aahaayam (Space) Vayu (Air)	Vaadha Thodam
Teyu (Fire)	Piththa Thodam
Appu (Water) Piruthivi (Earth)	Kabha Thodam

It would be incorrect to think of the "Thodams" only as the Three dynamic elements manifesting in the body. These active elements are always supported by the two unchanging elements, for change can only happen upon the foundation of non-change. Thus Vayu and Aahaayam combine to become 'Vaadha Thodam' which controls all aspects of movements as well as space within the body. In spite of this combination, however, "Vaadha Thodam" tends to primarily display the characteristics of Vayu-wind. The words "dry, light, cold, quick, rough, minute and mobile" describes the characteristics of "Vaadha Thodam".

Teyu, in conjunction with some of the qualities of vayu and Appu, becomes "Piththa Thodam" This is the function that governs all the body's conversion processes as well as its heat and energy producing capacities. 'Piththa Thodam' is primarily characterized by the qualities of Teyu, which are "hot, sharp, penetrating, light, acidic, and slightly oily".

'Appu' supported by "Piruthivi" becomes "Kabha Thodam" and controls liquefaction, lubrication and cohesion. It is also responsible for giving solidity and structure to the body. 'Kabha Thodam' primarily reflects the qualities of the water, but also some traits of the earth elements, consequently, 'Kabham' is heavy, slow cold, steady, solid and oily.

Another interesting feature of the 'Thodas' is that each has a taste (mWRit) associated with it.

"Vaadham" is mostly Pungent,

"Piththam" is Sour and

"Kabham" is Sweet.

"thjkha; gilj;J

gpj;j td;dpaha; fhj;J - nrl;g

rPjkha; Jilj;J"

- njiuah; kUj;Jtghujk;

THODAMS AND THEIR FUNCTIONS

Vaadha Thodam	Separation / Movement
Piththa Thodam	Conversion / Transformation
Kabha Thodam	Cohesion / Liquidity

These three humours Vaadham, Piththam and Kabham are more or less correlated with Air, Gastric juice and saliva respectively. They circulate in the body system in different proportions and help in the digestion of food and other general physiological functions of the body. Each of them has different functions. Yet it is harmony, the right proportion of each, the proper combination of the three humours which are responsible for maintaining the good health.

When the all-environmental items like diet, weather etc., disturb Vaadham, it loses its control, which may be diminished or exaggerated. So the other two "Thodams" are also disturbed which are in peculiar Equilibrium State. Finally this may lead to "Vaadha" diseases.

LOCATIONS :

Generally "Vaadham" lives in,

1. Abaanan
2. Edakalai
3. Kaamakodi
4. Undhiyin keezh moolam
5. Hip region
6. Bones
7. Muscles
8. Nerves
9. Joints
10. Skin

11. Hair follicles and
12. Stools.

Physiologically 'Vaadham' which has no alterations, lives in Gastro Intestinal Tract, Bones, Ear, Thigh, Hip and Skin.

NATURAL PROPERTIES OF VAADHAM

1. Giving briskness
2. Expiration and Inspiration
3. Functioning the mind, thoughts and body
4. Regulation of the "Fourteen Physiological Reflexes", (Vegam)
5. Functioning the "Seven Udakattukal" uniformly
6. Protection and strengthening of the Five sensory organs. (Iymporikal)

FUNCTIONS OF VAADHAM :

1. Body ache
2. Pricking pain
3. Tearing pain
4. Nerve weakness
5. Shivering
6. Mental distress
7. Dryness
8. Movements
9. Weakness
10. Joints pain
11. Traumatic pain
12. Dislocation of joints
13. Weakness of organs
14. Pilo-erection
15. Paralysis of limbs
16. Polydypsia
17. Severe pain in calf and thigh muscles
18. Bony pricking pain

19. Anuria and constipation
20. Unable to do flexion and extension of the limbs.
21. All tastes to be like astringent.
22. Excess salivation and
23. Darkness of skin, eyes and urine.

QUALITIES OF VAADHAM :

Own Qualities :

- | | | |
|----------------|---|----------|
| 1. Kadinam | - | rough |
| 2. Varatchi | - | dry |
| 3. Elesu | - | light |
| 4. Kulirchi | - | cold |
| 5. Asaidhal | - | unstable |
| 6. Anuththuvam | - | subtle |

Opposite Qualities :

- | | | |
|------------|---|----------|
| 1. Mirudhu | - | soft |
| 2. Pasumai | - | unctuous |
| 3. Paluvu | - | heavy |
| 4. Akkini | - | hot |
| 5. Sthiram | - | stable |
| 6. Katti | - | solid |

RELATION WITH TASTE :

The tastes, which increase 'Vaadham' are Sour and Astringent.

" g[spJth; tp";R';fwp ahw;g{hpf; Fk;thjk;
 xspa[th; ifg;ngwpy; gpj;JrPWk; - fspspbkhHpna
 fhh;g;gpdpg;g[tp";rpw;fgk; tp";R"; rl;oujr;
 nrug; g[zh; nehaqfhnj"
 - fz;qrhkpak;

The Tastes, which neutralizes Vaadham, are Sweet, Sour and Salt.

" thj nkypl;lhy; kJuk; g[spa[g;g[
 nrjKwr; bra;a["; rpiwak; - Xjf;nfs;

fhue; Jth; frg;g[fhl;L"; Ritbay;yhk;
rhug; ghpfhu"; rhw;W"

- fz;qrhkpak;

RELATION WITH ELEMENTS :

Vaadham = Vali + Aahaayam

The Vali is present in bitter, pungent and astringent.

The Ahaayam is present in bitter only

1. Sweet = Earth + Water
2. Sour = Earth + Fire
3. Salt = Water + Fire
4. Bitter = Air + Sky
5. Pungent = Air + Fire
6. Astringent = Earth + Air

Vaadham = Air + Sky

Piththam = Fire

Kabham = Water + Earth

Three phases of "Prapakam" (Metabolism)

PRAPAKAM	THODAM	TASTE	FUNCTION
Inippu	Kabham	Sweet	Moistening of Food
Pulippu	Piththam	Sour	Conversion of Food
Karppu	Vaadham	Pungent	Absorption and Separation of food

ALTERATIONS OF VAADHAM

Vaadham is specialized in Aadi, Aavani Purattaasi, and Ippasi physiologically.

The three humours are affected either themselves or with Udal Thaadukkal, pathologically.

The type of alterations of Vaadham are :

1. Thannilai Valarchi (jd;dpiy tsh;r;rp) :

- Definition : A kutram, which is provoked in its own location is called "Thannilai Valarchi"
- Limitation : Hatredfulness of the things which are causing Thannilai Valarchi and likeness of the things which are getting opposite properties are the limitations of "Thannilai Valarchi"
- Duration : Vaadham gets "Thannilai Valarchi" during Mudhuvener kaalam (Aani and Aadi)

2. Vetrunilai Valarchi (ntw;W epiy tsh;r;rp) :

- Definition : A kutram, Which is provoked to other locations is called "Vetrunilai Valarchi"
- Limitation : Signs and symptoms of the affected kutram and the pathological conditions of the Udal Thaadhukkal give the details of the limitations.
- Duration : Vaadham gets "Vetrunilai Valarchi" during Kaar kaalam (Aavani and Purattaasi)

3. Thannilai Adaidhal (jd;dpiy miljy;) :

- Definition : A provoked kutram, which is neutralizing in its own property is called Thannilai Adaidhal.
- Duration : The provoked Vaadham neutralizes during Koodhir kaalam (Ippasi and Kaarthigai)

FACTORS WHICH ALTER VAADHAM :

1. When hot foods are mixed with Vaadham, "Vaadham" gets "Thannilai Valarchi".
2. When cold is mixed with Vaadham, "Vaadham" gets "Vetrunilai valarchi".
3. And when oily foods with hotness are mixed with vaadham, "Vaadham" neutralizes in its own property that means healthy conditions.

" tha[tpd; Fzj;Jld; Nlqfpy;
 tha[tpdpl';fspy; neha;fSz;L
 tha[tpy; Fsph;r;rpjhd; Toonyh
 te;jpLk; eypfSk; ntwplj;nj
 tha[tpy; mdy;jUk; bea;g;gike;jhy;
 tha[t[k; ml';fpLk; tha;ikapJ
 tha[tpd; gpzpfisg; nghf;fplnt
 tFj;jpLk; KdpbkhHp fz;oLnk"
 - rpj;j kUe;Jth';f RUf;fk;

DESCRIPTION OF VAADHAM :

The Siddha classical texts divide the general principles of vaadham into ten subsidiary forms differ from one another by their localization in the body (Anatomical) and by their particular functions (Physiological). They are,

(1) PIRAANAN : (Heart Center)

It corresponds to the Cardiac plexus and refers to the chest. It maintains the action of the heart the functioning of the mental faculties of perception and concentrations and also cares for the arteries, veins and nerves. It regulates the respiration and digestion. It is otherwise called as "**Uyirkkaal**".

(2) ABAANAN (Moolaadharam center)

It corresponds to the Pelvic plexus and controls the excretion. It is focused in the lower part of the gut and also occupies the sites in the bladder and genitals. It has a tendency to travel downwards. It moves in the whole Genito Urinary Tract and regulates the defaecation, micturition, menstruation, parturition and ejaculation. It is otherwise termed as "**Keezhnakkumkaal**"

(3) VIYAANAN : (Fore head center)

It corresponds to the naso ciliary plexus at the root of the nose and base of the skull and controls the will. It helps in the circulation of energy throughout the entire

nervous system and the movements of various parts of the body. It also transports nutrients and blood throughout the entire body. It is also known as "**Paravukaal**"

(4) **UDHAANAN** : (Throat Center)

This corresponds to the pharyngeal plexus in the throat region and controls speech and breathing. It is also responsible for the physiological reflex actions like vomiting, hiccup, cough, etc., It has the tendency to travel upwards. It is otherwise named as "**Melnokkukaal**"

(5) **SAMAANAN** : (Navel Center)

It corresponds to the solar plexus in the navel region and controls digestion. It selects the useful substances from the swallowed food and supplies them to the whole body. It balances the other 'Vayus' it is also called "**Nadukkaal**"

(6) **NAAGAN** :

It is responsible for the intelligence of an individual, winking, singing and hair raising.

(7) **KOORMAN** : -

It is responsible for yawning, closing of mouth (immovable of lower jaw) winking, shedding of tears, vision and opening of the eyes.

(8) **KIRUGARAN** :-

It is responsible for salivation and nasal secretion. It helps in digestion and meditation. It produces cough and sneeze.

(9) **DHEVATHATHTHAN** : -

It is responsible for laziness, lassitude, to quarreling arguing, begging and also for much anger. It helps movements of the eyeball in various directions and is present in genital and anal region.

(10) **THANANJEYAN** :-

It is present in nose and responsible for swelling of the body and tinnitus. It leaves from the body by blowing up the cranium only on the third day after death.

BEHAVIORAL CHARACTERISTICS OF VAADHA DHEHI

- | | |
|---|---|
| 1. Performs activity | - Very rapidly |
| 2. Motivated enthusiastic and excitable | - Very Easily |
| 3. Moods | - Change quickly |
| 4. Learns | - Very quickly and easily |
| 5. Quality of mind | - Quick, creative and
imaginative but restless |
| 6. Memory | - Inconsistent varies between
weak |
| 7. Digestion | - Inconsistent varies between
weak and strong |
| 8. Appetite | - Variable can ship meals
occasionally. |
| 9. Quantity of food eaten | - Variable |
| 10. Taste preference | - Sweet, Sour, and Salty |
| 11. Thirst | - Varies |
| 12. Food preference | - Warm, Moist Foods |
| 13. Drink preference | - Hot |
| 14. Frequency of bowel movements | - Irregularly |
| 15. Consistency of feces | - Hard, Dry Stools |
| 16. Perspiration | - Moderate |
| 17. Sexual desire | - Small |
| 18. Amount of sleep | - Usually 5-6 hours. |
| 19. Quality of sleep | - Light, easily interrupted |
| 20. Type of dreams | - Fear, Flying, Running,
Jumping Climbing trees and
mountains |
| 21. Response to challenge | - Uncertain, Worried and
indecisive |
| 22. Speech | - Fast, omitting words and |

digressing

23. Gait

- Fast, with a light step.

PHYSICAL CHARACTERISTICS OF VAADHA DHEHI

- | | |
|--------------------------------|--|
| 1. Shape of Face | - Thin body, and elongated plain looking |
| 2. Complexion | - Dark, brownish or Black. |
| 3. Involuntary bodily movement | - Twitching, jerking and fine tremors |
| 4. Body weight | - Light and below normal |
| 5. Built | - Lean, thin, tall or short. |
| 6. Texture or Quality of skin | - Dry, coarse, rough, cracked or scaling and birth marks |
| 7. Skin moistness | - Dry |
| 8. Body temperature | - Low, cold extremities |
| 9. Stamina | - Short |
| 10. Shape and quality of eyes | - Small bulging and deep set with thin and lashes scanty eye lashes. |
| 11. Characteristics of eyes | - Dry, frequent blinking |
| 12. Teeth | - Very small or protruding crooked, easily cracked |
| 13. Nails | - Short, rough, brittle, dark and luster ness |
| 14. Lips | - Dark, dry and cracked |
| 15. Size and shape of fingers | - Very short or long stubby and thick |
| 16. Colour and texture of hair | - Thin, Coarse, dry and wiry, darker in color or balding. |
| 17. Body hairs | - Scanty |
| 18. Joints | - Loose or rigid pronounced crack and pop |
| 19. Veins | - Prominent or branching close to surface |
| 20. Chest | - Long, sunken thin ribs easily visible. |
| 21. Body odour | - Little or no smell or perspiration |
| 22. Tongue | - Dark, brownish, thick, rough and |

very cracked on the sides.

AETIOLOGY OF VAADHA DISEASES :

The aetiological factors for all types of Vaadha diseases including "Pakkavaadham" have been described generally in "Yoogimunivar vaithya sindhaamani perunool - 800" and "Agasthiyar kanma kaandam - 300"

I. In Yoogi munivar Vaidhaya Sindhaamani - 800

1. Breach of trust.
2. Abusing from the pious elderly people and priests.
3. Exploitation of charitable properties.
4. Ingratitude with mother, father and teacher
5. Excessive eating of bitter, astringent and pungent tastes.
6. Intake of dry and old cooked rice.
7. Drinking of raw rainwater.
8. Sleeping during day and awakening during night.
9. Undue starvation
10. Lifting of carrying of heavy loads.
11. Sexual pre-occupations.
12. Disregarding attitude with God
13. Refusing food destitute and hermits.
14. Disregarding the advice of preceptors.
15. Involving in murdering stealing, lying and lustful activities.
16. Indulging in sexual act during exaggerated vaadham
17. Walking for a long distance.
18. Exposure to chillness.
19. Excessive intake of curd, immediately after excessive intake of vegetables, fruits and tubers will lead to twisting pain in the vertebral column and pain in ankle, knee joints.

"vd;dnt thje;jh bdz;gjhFk;
,fj;jpny kdpjh;fSf; bfa;a[khW

gpd;dnt bghd;djidna nrhu";bra;J
 bghpnahh;fs; gpuhkziuj; Jhlzpf;Fk;
 td;dnjtr; brhj;jpy; nrhu";bra;J
 khjhgpjh FUiit kwe;j ngh;f;Fk;
 fd;dnt epe;ij bra;jhy;
 fhaj;jpw; fye;jpLnk thje;jhnd"

"jhbdd;w frg;ngHL Jth;g g[iwg;g[
 rhjfkha; kp";RfpYk; rik;j tz;zk;
 Mbdd;w thwpdJ g[rpj;j yhYk;
 Mfhaj; njwyJ Foj;jhYk;
 ghbdd;w gfYwf;f kpuhtpHpg;
 gl;odpna kfpt[Wjy; guhbka;jy;
 njbdd;w bkhHpahh; nkwrpe;ij ahjy;
 rPf;fpukha; thjKpJ brdpf;Fe; jhnd"

"Mdhd tud;widna kjpahkhe;jh;
 mfjp gunjrpah;fl; fd;d kPahh;
 nfhdhd FUbkhHpia kwe;j ngh;fs;
 bfhiy fst[bgha; fhk'; Fwpj;j ngh;f;F
 Cdhd rle;jd;dpy; thjk; te;J
 cw;gtpf;Fk; ntjj;jpd; cz;ikjhnd"
 - a{fp itj;jpa rpe;jhkzp

" gfunthjkJ nfhgpi; jg;ngH
 gz;ghf bgz;ngHf kJjhd; bra;apy;
 efunt btFJhu tHpelf;fpy;
 espuhd fhW;Wnk gdpnkW; gl;lhy;
 kpfunt fha;fs; fdpfpH';F jd;id
 kpftUe;jp kPwpna japh;jhd; bfhz;lhy;
 Kfunt KJbfYk;ig KWf;fp behe;J
 KH';fhYk; fizf;fhYk; fLg;g[cz;lHFnk"
 - a{fp itj;jpa rpe;jhkzp

Kanmam means the deeds good or bad by an individual in previous and present births.

1. Murdering the Children
2. Cutting the living trees
3. Breaking the legs of living animals
4. Cutting the branches and leaves of living trees.

"Ehbyd;w thjk; te;jtif jhndJ
Jz;ikaha;f; fd;kj;jpd; tifi; nfS
fhypny njhd;wpaJ fLg;g njJ
iffhy; Klf;fpaJ tPf;fnkJ
nfhy; gLfpd;w tpUl;r kh
FHe;ij kue;jd;id btl;ly;nky; njhy;rPty;
ehypny rPtbre;J fhy; Kwpj;jy;
ey;ybfhk;g[jiHKwpj;jy; eypj;jy; jhnd
- mfj;jpah; fd;kfhz;lk;

CLASSIFICATION OF VAADHA DISEASES :

In classification of Vaadha disease, we can find contradictory view regarding the number.

- (1) In Yoogi Vaidhya Sindhaamani Perunool - 800 :
Eighty Types of Vaadha diseases are described.

" vd;dnt thjkJ vz;jhFk;"

But in concluding section of the same text, eighty for Vaadha diseases have been reported.

"Mkg;gh thjk bjz;gj;J ehY
mjDila Fzh Fz';f yl';fyhf"

- (2) In Ashtaanga Sangiragam and
- (3) Noi Naadal and Noi Mudhal Naddal Part II Vaadha diseases have been classified as eighty five types on the symptomatology and involvement of different parts of the body.
- (4) Eighty one types of Vaadha diseases have been described in Theraiyar

Vaagadam

(5) In Dhanvandhiri Vaidhdhiyam and

(6) In Jeeva Rakshaamirdham

Eighty nine types of Vaadha diseases have been noted.

(7) In Agasthiyar - 2000

Forty types of Vaadha diseases are in the upper half on the body and forty in lower half of the body and the total number is eighty.

"vz;gJ thjkhF kpUtif gLj;jpf; fhzpy;
ez;g[W miuf;F nkny ehw;gJ thjkhFk;
gz;nru iuf;Ff; fPnH gj;J ehd;fhFbkd;W
tz;Lnrh; FHypdhns thjj;jpd; TWjhnd"
- mfj;jpah; 2000

(8) In Bohar Vaidhdhiyam 700

Eighty Vaadha diseases are told.

"thr;brd;w thjk; vz;gJt[k; nghFk;"

(9) In Agasthiyar Gurunaadi - 235 and

(10) In Agasthiyar Raththina Surukkam - 500

Eighty four Vaadha diseases have been reported.

" kw;wnk thjnuhfk; tifa[vz;gj;J ehny"

CLINICAL FEATURES :

The signs and symptoms of Vaadha diseases have been given in many siddha classical textbooks as follows.

(I) In Agasthiyar Naadi

(1) Weakness of the limbs

(2) Sluggishness

(3) Stiffness and

(4) Numbness

" brhy;ynt thj kJ kPwpw;why;

nrhh;tile;j tha[tpdhy; njfbk';Fk;
bky;y iffhy; mrjp a[z;lhFk;
bka;Kl';Fk; epkpubthz;zhj; jpkph; cz;lhFk;"
- mfj;jpah; eho

(II) In Theraiyar Vaagadam

- (1) Loss of appetite
- (2) Back ache
- (3) Fever
- (4) Cough
- (5) Sleeplessness
- (6) Shivering
- (7) Pain in the joints
- (8) Head ache
- (9) Excessive yawning
- (10) Constipation
- (11) Burning sensation of the body
- (12) Paralysis
- (13) Excessive salivation
- (14) Chillness and
- (15) Tremors

"jf;ftha[nfhgpp;jhy; re;Jt[ise;J jiynehth
kpf;f\hp bfhl;lhtpl; l';bfhpa[ky';fl;Lk;
xf;feuk;g[jhd; Kl';fKyh;e;J tha;eP +hptUk;
kpf;fFspUk; eLf;fKkha; nkdpFswp tU';fhnz"
- njiuah; thflk;

" thjtPW md;dkpw';fhJ fLg;g[z;lhk; tz;zKz;lhk;
nkhJ fl;Lnuhfk; RuKz;lh kpUkYkh Kw';fjbjd;Wk;
XJNhpa thjkdyhF eLf;fKz;lhk; bghUs;fsha;e;
jPbjdnt euk;gprpj;J re;Jfs; njhW'; fpLf;Fe; jhnd"
- njiuah; thflk;

III. In Agasthiar - 2000

1. Giddiness
2. Stabbing pain in the face
3. Redness of eyes
4. Ulcer
5. Abdominal distension
6. Joint pain in upper and lower limbs
7. Numbness in limbs
8. Oliguria
9. Drowsiness
10. Chillness of body

"thjj;jpd; Fznkbjd;dpy; kaf;Fe;jpa';Fk; kyh;rptf;Fk;
ghj';Fsph;e;J rUt';fk;gw;wp elf;FKf'; fL;f;F";
rPjj;Jlnd tapWg[z;zh"; rphpg;gpj; jJ';bjwp \r;rhk;
nghjj; jz;zPh;jhd; th';Fk; g[fGk; g";r Fzkhnk"

" fhy;if fLf;Fe; jpkpUz;lh'; fz;qk; Jh';fp nrhgpf;FK
nfhy";brhpa[k; m';fbky;yhk; Fsph;e;J re;Jfd'; bfhs;Sk;
rPykpFe;J rPh;fhzpy; rpWePh; tw;wptU kpfnt
khyj;jl'; fhz khdidaha; khnjthj nuhfknj"

"thjj;jpd; Fzj;ijf; nfz;kpd; tapWhJk; bghUkpf; bfhs;Sk;
jhJw;w t[lk;g[iffhy; re;Jfs; fLg;g[njhd;Wk; "
mfj;jpah; - 2000 "

THE FEATURES OF EXAGGERATION OF VAADHAM

1. Body weakness and darkness
2. Linking to eat hot foods
3. Shivering
4. Abdominal distension
5. Constipation
6. Diminution of immunity
7. Giddiness

8. Insomnia
9. Laziness

THE FEATURES OF DIMINUTION OF VAADHAM

1. Body ache
2. Hoarseness of voice
3. Loss of memory
4. Semi consciousness
5. Difficulty to do any work
6. Paleness and coolness of body
7. Excessive salivation
8. Heaviness of body
9. Anorexia
10. Cough, sleep and abdominal distension

MUKKUTRA VERUPAADUGAL (Pathogenesis)

- (1) By any one or other etiological factors, Vaadham is vitiated first.
- (2) Then it affects the other dhoshams Piththam and Kabham which are in three dhosa equilibrium.
- (3) And then the ten vayus, seven udarkattugal and other structures are also affected according to the severity of the illness.
- (4) By the affection of 'Piranaan' wheezing, cough, dyspnoea, nasal congestion and indigestion may occur.
- (5) By the vitiation of 'Abaanan' constipation, Oliguria and menstrual disorders may occur.
- (6) By the affection of 'Udhaanan' heart, chest, mouth and eyes are affected and hiccup, vomiting and heart burn are formed.
- (7) By the vitiation of 'Viyaanan' muscle wasting loss of sensation, giddiness, coma, body ache, numbness, itching and tingling sensation are formed.
- (8) By the affection 'Samaanan' disturbances of other vayus abdominal

distension, anorexia malnutrition and indigestion may occur.

- (9) When 'Saaram' is affected anorexia, laziness, lassitude, weakness and dryness of skin are formed.
- (10) When 'Senneer' is affected nerve weakness, dryness, mental disorders, haematuria, jaundice, anaemia, anorexia, splenomegaly and skin diseases may occur.
- (11) When 'Oon' is affected muscle wasting, dropsy, body ache, oedema and weakness of five sensory organs are formed.
- (12) When 'Kozhuppu' is affected body debility, bodyache, joints pain, splenomegaly and tiredness may occur.
- (13) When 'Enbu' is affected arthritis, joint pain, osteophyte formation and other bone diseases are formed.
- (14) When 'Moolai' is affected blurring of vision, oliguria, ulcers, heaviness of the body and bone diseases may occur.
- (15) When 'Sukkilam' is affected lustfulness, urinary calculus, bleeding during coitus, orchitis and diseases of genitalia are found.
- (16) When 'Piththam' is affected anorexia, anaemia, indigestion, blurring of vision, dryness and darkness of skin, vomiting, giddiness, burning sensation of the body and difficulty to do works are formed.
- (17) When 'Kabham' is affected respiratory disorders, indigestion tastelessness, burning sensation of eyes and joint diseases may occur.

In Vaadha diseases Abaanan, Viyaanan, Samaanan, Naagan, Koormam, and Dhevathathan are affected generally Saaram, Senneer, Oon, Kozhuppu, Enbu, and Moolai are also affected one by one.

NAADI NADAI :

In Vaadha diseases the following stages of naadi are formed generally.

1. Exaggeration of Vaadha naadi
2. Vaadha piththa thondha naadi
3. Vaadha kabha thondha naadi

4. Kabha vaadha thondha naadi and
5. Kabha piththa thondha naadi

PAKKA VAADHAM

DEFINITION :

Pakka - A prefix which means "Side"

Pakka vaadham - Vaadha disease which is formed due to the 'Paralysis of one half of the body' i.e., upper and lower limbs of the same side. It may be associated with weakness of facial muscles on the same side (Ipsilateral hemiplegia) or opposite side (Contralateral hemiplegia)

In Siddha system of medicine "Pakka Vaadham" means a Vaadha diseases which consists of immobilization of half of the body, paralysis of the upper and lower limbs of the one side.

Pakkavaadham is one of the Vaadha diseases, which is described in "Yoogi munivar vaidhya sindhaamani perunool - 800". It is a condition which deals with the exaggeration of Vaadham, spreads all over the body, and produces pain, paralysis to the one half of the body (paralysis of upper and lower limb of one side), excessive sweating and paleness of body.

KURIKUNANGAL (Signs and symptoms)

"cz;ikah a[lk;bgy;yhk; tha[thfp

cah;fpd;w ehoaJ mirt[kpd;wpf;
 fz;ikaha;f; fhakP jdpny nawpf;
 frf;fpna apHpe;Jnk typj;Jf; fhqk;
 gz;ikaha;g; gf;fj;j yprpt[Kz;lha;g;
 ghhpj;J gizf; ifa['; fhY'; nfhqk;
 td;ikah a[lk;bg';Fk; tpah;it fhqk;
 bkypt[gf;f thjj;jpd; tptue; jhnd"
 - a{fp itj;jpa rpe;jhkzp

1. Exaggeration of Vaadham and it spreads all over the body
2. Constriction of the arteries
3. Immobilization of the body
4. Production of the pain all over the body
5. Paralysis of one half of the body
6. Paralysis of upper and lower limbs on the side
7. Paleness of the body
8. Excessive sweating

"Pakkavaadham" is named otherwise "Pakkavayu" In "Siddha Maruthuvam" narrated by Thiru.Kuppusamy mudhaliar, the pakkavaadham is defined as that it affects the normal functions of upper limb, lower limb, fingers, tongue, mouth & eye.

Pre Symptoms :

By any way the vaadham is exaggerated and it leads to heaviness of the body, constipation, angryful, palpitation & fainting before the occurrence of stroke.

Aetiology :

- i) Ingestion of vaadha vitiated foods
- ii) Intake of alcohol
- iii) Getting excess of angry
- iv) It may occur as an associated disease for syphilis and heart diseases.

- v) Without showing any pre symptoms it may exist suddenly either during work or awakening from the bed.
- vi) It may develop by numbness, tremors and ends with paralysis.

Symptoms :

- i) In ability to use one half of the body
- ii) Loss of functions of upper and lower limbs.
- iii) Unable to flex and extend the lower limbs.
- iv) Presence of circumduction gait.
- v) Deviation of mouth.
- vi) Difficulty to close the eye lids or partially closed.
- vii) Drooling of saliva.
- viii) Unable to speak.

Pathogenesis :

1. Exaggeration of vaadham by ingested food and habits.
2. Vitiating vaadham itself initiates piththam and kabham.
3. Vitiating Vaadham
 - (1) affects Abaanan and causes constipation
 - (2) affects udhaanan and causes damage to heart, lungs, mouth and eyes.
 - (3) affects viyaanan and causes circulatory disorder. It damages the functions of upper and lower limbs, assimilatory processes, giddiness and wasting of muscles.
 - (4) affects samanana and causes indigestion, pleurisy, gastric disturbances, and pain abdomen.

PINIYARIMURAIMAI (Diagnosis)

It is a very important part of the treatment. It is helpful to select the correct line of treatment and good prognosis. It is based upon the following diagnostic methods.

I) PORIAAL ARIDHAL :

The physician should examine the patient's porigal with physician's porigal.

- | | | |
|----------|---|-------------------------------|
| 1. Mei | : | Feels all types of sensations |
| 2. Vaai | : | For knowing taste |
| 3. Kan | : | Meant for vision |
| 4. Mooku | : | For knowing the smell |
| 5. Sevi | : | For hearing |

II) PULANNAL ARIDHAL :

The physician should examine the patient's pulangal

- | | | |
|---------------|---|--------|
| (1) Hearing | - | Ear |
| (2) Vision | - | Eye |
| (3) Taste | - | Tongue |
| (4) Sensation | - | Skin |
| (5) Smell | - | Nose |

III) VINAADHAL (Interrogation)

The physician should interrogate about the patient's name, age, occupation, native, socio-economic status, dietetic habits, prone to any allergens, complaints, history of previous illness, history of present illness, family history, personal history, habits and frequency of attacks. If the patient is in the stage of inability to speak, or a child physician should interrogate the details with his immediate relatives who are taking care of him.

IV) ENNVAGAI THERVUGAL

The prime method adopted to diagnose the disease is by means of 'Ennvagai thervugal'. The value of envvagai thervugal is very important for diagnosing purposes, which is the unique and special method describing in siddha medicine. Hence the following makes the diagnosis.

1. NAADI (PULSE)

The study of 'Naadi' is the important factor in 'Ennvagai thervugal' which gives almost the correct diagnosis. Naadi may be studied at ten places in the body, which are Heel, Genital Organ, Abdomen, Chest, Ear, Nose, Neck, Hand, Eyebrow and Vertex.

But the study of naadi at hand is the best because the radial artery is located superficially. The unique factor which pertaining the soul in the body is known as 'Naadi'. Naadi must be studied in right hand for men and left hand for women. The three Uyir thaadhukkal are formed by the combination of

Edakalai	+	Abaanan	-	Vaadham
Pinkalai	+	Piraanan	-	Piththam
Suzhumunai	+	Samaanan	-	Kabham

They can be felt one inch below the wrist on the radial side by means of palpation with the tip of the index, middle and ring finger corresponding of Vaadham, Piththam, and Kabham respectively. The three humours exist in the ratio of 1:1/2 :1/4 normally. Derangement of this ratio leads to various diseases.

"fhpKfdoia thH;j;jp
 ifjdp; eho ghh;f;fpy;
 bgUtpuy'; Fyj;jpy;
 gpoj;jo eLnt bjhl;lhy;
 xU tpunyhoy; thjk;
 cah; eLtpuypy; gpj;jk;
 jpUtpuy; \d;wpnyhoy;
 rpnyj;Jk ehojhnd"
 mfj;jpah; - 2000

In cases of vaadha diseases the following stages of Naadi are seen.

- (1) Exaggeration of Vaadham
- (2) Vaadha piththa thondha naadi
- (3) Vaadha kabha thondha naadi
- (4) Kabhavaadha thondha naadi
- (5) Kabhapitha thondha naadi

(2) SPARISAM (PALPATION)

By sparisam the temperature of skin (heat and cold) smoothness or

roughness, sweat, dryness, hard patches, swelling, growth of abdominal organs, tenderness and nourishment can be felt.

(3) **NAA (TONGUE)**

By the examination of tongue its color, coating, dryness, deviation, movements, variations in taste, ulcer and the conditions of teeth and gums can be noted.

(4) **NIRAM (COLOR)**

By the examination of niram, the type of Dhegam (Body), cyanosis, redness, pallor, yellowish discoloration can be noted.

Vaadha Dhegi	-	Dark Color
Piththa Dhegi	-	Yellow or Red Color
Kabha Dhegi	-	White or Yellow Color

(5) **MOZHI (SPEECH OR VOICE)**

In the examination of mozhi, the pitch of voice (low or high), action of laughing, crying, slurring and speech in hallucination can be noted.

(6) **VIZHI (EYE)**

By the examination of vizhi, pallor, redness, yellowishness, dryness, lacrimation, sharpness of vision must be noted.

(7) **MALAM (STOOLS)**

By the examination of malam, its nature, color, quantity. Presence of blood, or mucous can be noted.

(8) **MOOTHTHIRAM (URINE)**

The examination of urine is classified into two types

- i) Neerkuri
- ii) Neikuri

NEERKURI :

It includes examination of colour, odour, deposits, quantity and frothy nature.

NEIKURI :

Preparation of patient : Prior to the day of urine examination for neikuri and neerkuri the patient is advised to take the balanced diet and the quantity of food must be proportionate to his appetite. He should have a good sleep.

METHOD :

After waking up in the early morning, urine collected in the glass container must be examined within 1½ hours. A drop of gingili oil is added through the side of the vitreous without any disturbing. The nature of neikuri should be noted in direct sunlight.

OBSERVATION :

If the drop of oil

- | | | |
|-------------------------------|---|--------------|
| 1. Lengthens like a Snake | - | Vaadha neer |
| 2. Spreads like a Ring | - | Piththa neer |
| 3. Appears like a Pearl | - | Kabha neer |
| 4. Spreads like Snake in ring | | |

Ring in pearl, Snake in pearl etc - Thondha neer

"mubtd ePz;o od; m`nj thjk; "

"MHpnghy; gutpd; m`nj gpj;jk; "

" Kj;bjhj;J epw;fpd; bkhHptbjd; fgnk"

Besides Ennvagai thervugal the disease can also be diagnosed by means of the other methods namely thinaigal, paruvakaalangal, uyir thaadhukkal, udal thaadhukkal, Gnanaendhriyangal and kanmendhriyangal, hence a thorough knowledge about the disease can be studied out systematically and properly in siddha system of medicine.

PITHTHAM :

Piththam is located in Urinary bladder, Heart, Head, Umblicus, Pinkalai, Piraanan, Abdomen, Stomach, Sweat, Blood, Eye and skin. It is classified into five

types they are

1. Anarpiththam : It digests all the ingested particles
2. Ranjagapiththam : It gives colour to the blood.
3. Saadhaga piththam : It is used to complete the work properly what he thinks in the mind.
4. Alosaga piththam : It gives vision to the eye.
5. Piraasaga piththam : It gives color to the skin.

KABHAM :

Kabham is located in Samaanan, Semen, Fat, Bone- marrow, Nose, Chest, Nerves, Bones, Brain, Large intestine, Stomach and Pancreas. It is divided into five types. They are

1. Avalambagam : It controls the other four types of kabham
2. Kiledhagam : It moistens the food
3. Podhagam : It helps to know the taste
4. Tharpagam : It gives cooling effect to the eyes.
5. Sandhigam : It gives lubricating effect to the joints.

UDAL THAADHUKKAL

There are seven udhal thaadhukkal in human body. They are

1. Saaram : It strengthens the body and mind.
2. Senner : It gives power, knowledge, and boldness to the mankind
3. Oon : It gives the structure and shape to the body and is responsible for the movements of the body
4. Kozhuppu : It lubricates the joints and facilitates their functions
5. Enbu : It protects the joints and facilitates their functions
6. Moolai : It is present in the bones and gives strength

7. Sukkilam / Suronidham : Meant for reproduction.

GNAENENDHIRYANGAL

The five Gnaenendhiryangal are

1. Mei (Skin) : Feels all types of sensations
2. Vaai (Mouth) : For knowing taste
3. Kan (Eye) : Meant for vision
4. Mookku (Nose) : For knowing the smell
5. Sevi (Ear) : For hearing.

KANMENDHIRIYANGAL :

The five kanmenthiryangal are

1. Kai (Hand) : Majority of normal works done by hand
2. Kaal (Leg) : For Walking
3. Vaai (Mouth) : For speaking
4. Eruvaai (Anus) : For Defaecation
5. Karuvaai (Genital) : For Reproduction

THINAIGAL :

Nilam is classified into five types. They are

1. Kurinji : Mountain and its surroundings.
2. Mullai : Forest and its surroundings. Piththa noigal, Vaadha noigal, Liver diseases are common.
3. Marutham : Field and its surroundings. Safest place to maintain good health.
4. Neidhal : Sea and its surrounding. Vaadha diseases and liver enlargements are common.
5. Paalai : Desert and its surroundings. Vaadha, Piththa and kabha noigal are common.

Study of five lands is very much needed, as some diseases are common in the particular lands.

PARUVA KAALANGAL

A year is classified into six seasons, each constituting two months, They are

- | | | |
|---------------------|---|--------------------------|
| 1. Kaarkaalam | - | Aaavani and Purattaasi |
| 2. Koodhirkaalam | - | lyppasi and Kaarththigai |
| 3. Munpanikaalam | - | Maargazhi and Thai |
| 4. Pinpanikaalam | - | Maasi and Panguni |
| 5. Elavenirkaalam | - | Chiththirai and Vaigaasi |
| 6. Mudhuvenirkaalam | - | Aani and Aadi |

Some of the diseases, during a particular season are commonly prevalent and study of it will also be such useful to diagnose.

The final diagnosis is confirmed by summarizing all the clinical findings observed by the above methods.

NOIKANIPPU VIVAADHAM (DIFFERENTIAL DIAGNOSIS)

There are certain other Vaadha diseases which resemble the clinical symptoms. As "Pakka Vaadham" but they differ in some ways. The careful and clear history taking and examination will reveal the correct diagnosis. They are

1. PATSCHA VAADHAM : (gl;rthjk;)

The clinical features are

1. The legs loose its activity as dead's one
2. Immobility of leg
3. Unable to walk
4. No hand grip to both hands, and loose its sensation
5. Tingling sensation
6. Deviation of mouth and Drolling of saliva
7. Body itself to be very hot.

"jhdhd fhy;nfhzpr; brj;jhw; nghyj;
 jhf;fhd jiuajdpny eyf;bfhz;lJ
 fhdhd iffbshd;Wk; gpobfh lhJ
 fdkhd czh;r;rpapd;wpf; iffs; nrhWk;
 khhdhd kaph;Tr;Re; jpkph;t[z; lhFk;
 tha;jhD'; nfhzyna jz;zPh; tPGk;
 ngdhd gpj;jk;bgh yfd;W fhqk;
 gphpt[gl;r thjj;jpd; bgw;wp ahnk"
 - a{fp itj;jpa rpe;jhkzp – 800

2. URAGADHA VAADHAM : (cufjthjk;)

The clinical features are

1. Pain present in the eyebrow, ear and half of the body.
2. Paralysis of the half of the body rarely
3. Involuntary movements of head and mouth
4. Chillness, tingling sensation of the body
5. Excess salivation

" mw;g[jkha; nehthfpg; g[Ut'; fhJ
 m';fj;jpw; ghjpjhd; typj;bjg; nghJe;
 jw;g[jkha;f; nfhzyna jiya[k; tha[e;
 jhtnt kpf eL';fpf; Fwpj;j TRk;
 tpw;g[jdha; tpHpfSe;jhd; kpifg;g[whJ
 bkypthfp rhPubky;yhk; tpah;it ahFk;
 g[w;g[jdha; tha; ePU kpfnt a{Wk;
 g[ifnk Uunt jj;jpd; ngnu"
 - a{fp itj;jpa rpe;jhkzp

3. ARPUDHA VAADHAM (mw;g[jthjk;)

1. Vaadham mostly exaggerated during intercourse, getting angry, singing loudly,

chewing betal nut, threatening and scolding others.

2. The exaggerated Vaadham leads to the paralysis and deviation of mouth.

"jPh;f;fkha; !;jphPa';fk; gz;qk; nghJe;
jpLf;bfdnt thh;j;ijnfh gpj;jnghJk;
Cf;fkh a[wj;Jjhk; ghLk; nghJk;
cz;qkty; fr;rhak; ghf;Fe; jhDk;
Mh;f;fkha;j; jl;ona foj;j nghJ
kHfhd Kfe;jd;dpy; tha['; nfhlhj;
jhh;f;fkha; kpfr;rpjwp tha['; nfhq";
rh';fkh aw;g[jth je;jh dhnk"
- a{fp itj;jpa rpe;jhkzp

4.AMARAKANDA VALI : (Fjpiu typ)

1. Initially, Pain all over the body
2. The limbs loose its strength
3. Fainting occurs
4. Occurrence of convulsions
5. Laughing
6. Excess sweating present in neck, head, shoulder and face.
7. Tongue and face paralyses unilaterally
8. Burning sensation and pain presents in throat, shoulders and back after the completion of convulsions.

",Jnt aku fz;ltyp
,';Fk; ehf;f Kf';nfhqk;
kJnt iffhY'; bka;ba';F
koe;J Joj;jhw; nghYisa[k;
a[ghJnt fz;l"; rpuRKfk;
g[Jbts;sk; nghw; ePbuhGFk;
kpfnt be";Re; njhw;KJFk;
gw;wp typf;Fk; cjuKnk"
- a{fp itj;jpa rpe;jhkzp

MUKKUTRA VERUPAADUGAL (PATHOGENESIS)

- (1) Any one or other etiological factors vitiate vaadham
- (2) Then Piththam and Kabham are also affected which are in three dhosha equilibrium.
- (3) And then Vayus, Udhalkattugal and other structures are also affected.
- (4) When Vaadham is vitiated body weakness, constipation, diminution of immunity, giddiness and sleeping disturbances are appeared.
- (5) In Piththam
 - Anar Piththam - Anorexia
 - Ranjaga Piththam - low haemoglobin level.
 - Alosaga Piththam - Diminished vision
 - Saadhaga Piththam - Difficulty to use upper limb and lower limb of the affected side.
- (6) In Kabham
 - Avalambagam - Cough, Disturbances of other Kabhams
 - Pothagam - Unable to differentiate the tastes
 - Tharpagam - Burning sensation of the eyes.
- (7) In Vayus
 - Piraanan - Cough
 - Abaanan - Constipation
 - Udhaanan - Numbness, tingling sensation, pain, muscle wasting in the affected side.
 - Samaanan - Disturbances of other Vaayus
 - Naagan - Mental disturbances
 - Koorman - Productive cough
 - Kirugaran - Productive cough
 - Dhevathathan - Sleeping disturbances
- (8) In Udal Tathugal
 - Saaram - Tiredness, anorexia, mental depression
 - Senneer - Anorexia, low haemoglobin, level affected side

Oon	- Pain and muscle wasting in the affected side
Kozhuppu	- Difficulty to raise the upper and lower limb of the affected side
Enbu	- Pain in the Joints
Moolai	- Tiredness, heaviness of the affected side in the body.

TREATMENT OF PAKKAVAADHAM

In Siddha system of medicine the main aim of the treatment is removal of Udalpinigal (due to alterations of uyir thadhukkal and udal thadhukkal) and Ulappinigal (due to Schizophrenia). Treatment is not only for removal of disease but for the prevention and improving the body condition also. This said to as follows.

1. Kaapu
2. Neekkam and
3. Niraippu

Ayyan Thiruvalluar says about physicians duty "Study the disease; spy the cause; seek subsiding ways and do what is proper and effective" and "The man well versed in medical lore, would measure the patient, disease and time before the healing work begins".

"neha;eho neha;Kjy; eho mJzpf;Fk;
tha; eho tha;g;gr; bray; " - jpUf;Fws;

"cw;whd st[k; gpzpast['; fhyK';
fw;whd; fUjpr; bray; " - jpUf;Fws;

So, it is essential to know the disease, the cause, the nature of the patient, severity of illness, the seasons and time of occurrence must be observed clearly.

The treatment is divided into three types in siddha system of medicine namely Dheva Maruththuvam, Maanida Maruththuvam, Asura Maruththuvam. The Deva Maruththuvam which is one by Parpam, Chendhooram, Sunnam, Padhangam, Kattu,

Kalangu and Kurukuligai etc., is high potent and quick effective.

LINE OF TREATMENT :

The line of treatment of consist of

- 1 The purgative drug must be given first to compensate the vitiated Vaadham
- 2 Medicines, internal and external are to be given for the affected Uyir Thaadhukkal, Udal Thaadhukkal and Vaayus.
- 3 The Sirappu Maruthuvam are Thokkanam must be done after application of oil for the strengthening the affected part. Varmam, Yogaasanam, Piraanaayaamam and Thiyaanam are also applied as supportive therapy to get quick relief.
- 4 Physical exercises for both upper and lower limbs must be advised to improve the muscle tone.
- 5 The food and habits, which are avoiding and adding, are also determined clearly.
- 6 Kanma neekkam is apart of treatment and it must also be done properly before the treatment.

TREATMENT

(1) PURGATIVE :

It corrects the vitiated Vaadham

"ngjpahy; thjk; jhGk; "

Murukkanviththu at early morning is given one day before starting the main treatment for given some patients.

"XJfpd;w kyf;fl;il bahHpa itj;jhy;
clypYs;s thijbayh bkhL';fpg; nghFk; "

(2) MEDICINES :

- (i) The Anti - Vaadha drugs the both internal medicine and the external applications are given to relieve the symptoms and strengthen the affected parts.
- (ii) Theraiyar processes like kizhi, otradam, pizhichchal and thattudhal are also applied with above medication for better and quick response.
- (iii) The 'Kayakalpa' drugs like Chithramoolam are more effective to Vaadha

diseases and also for rejuvenating therapy.

(3) THOKKANAM (MASSAGE)

Massage is the first friend, which serves the human beings from the time of birth. It is excellent for relieving muscle aches, muscle weakness, muscular atrophy and it is powerful non-drug method to promote sleep by using medicated oils. To be a good massager, one needs to look at the formation and function of the human Physiology and Anatomy musculature. The Physician should be physically and mentally healthy.

Massage which works with blood vascular system, to improve the circulation of blood to the affected parts, nervous system, and lymphatic system. It's works on the body, both levels of physical and mental. It balances the three Dhosam.

1. PHYSICAL

Rubbing of the body produces heat and increases the blood circulation. It affects the lymphatic system and supplies more blood to the affected area. Body heat and vitality increase as the heart and circulatory open up to provide fresh oxygen and vital energy to all parts of the body while simultaneously drained out waste gases and toxins. As it increases circulation of blood any body temperature massage should be avoided during high blood pressure and Hyper pyrexia.

2. PSYCHE :

Through touch massage works on the nervous system and affects the circulation of growth hormone. All feelings and fantasies of the massager one transmitted to the person getting the massage.

Massage, also increases the production of WBC and antibodies, which provide more resistance against foreign bodies. This helps in the defense mechanism of the body and increase immunity towards environmental changes. The medicated oil also helpful to the patient to protect them from bedsores.

3. SIRAPPU MARUTHUVAM

Varumam, Thokkanam, Yogaasanam, Piranaayaamam and Thiyaanan are the sirappu maruthuvam in the treatment of "Pakkavaadham" and they are done as supportive therapy for quick relief.

1. YOGAASANAM : (Postures)

The yogaasanams are reliable supportive or sometimes main part of treatment of Vaadha diseases generally or specially. This therapy is regarded as a science as well as a method that allow living a harmonious life. The yogaasanaas are useful not only to revive the body and also to strengthen the nervous system. It is more important than physiotherapy for not spending more physical energy and also provides the mind to be calm. To regenerate the glands and treats the physical and mental illness, they bring the human body under the complete control of the mind.

In cases of improved 'Pakkavaadham' Bhujangaasanam, Shalabhasanam, Pawanamuktasana and in cases of fully affected "Pakka vaadham" Savaasanam are very useful.

1. Bhujangaasanam :

Position :

Lie prone on the blanket keeping the legs together, chin touching the ground and the legs facing up, stretch the hands straight forward, alongside the head resting the palms of the ground.

Procedure :

- 1 Bring the arms back to the level of the 12th rib bone. keep the hands bent at elbows, least pressure to be exerted on the hands maintain the elbows touching the body let it not spread out.
- 2 Raise the head first and then the upper portion of the trunk slowly, just as the cobra raises its hood, fill the naval portion is about to leave the dorsal spine touch the body below navel straight in touch with the ground.

2. Shalabhasanam

Position :

Lie prone on the blanket, keeping the legs and hands together, chin and

palm facing the floor and heel facing up. Rest the face towards the floor.

Procedure :

1. Raise the legs upwards without bending the knees for that knee facing towards top and lesser pressure to be exerted by hands on the body to provide support.

Wait for few minutes and then return the same to initial stage.

3. Pawanamuktasanam :

Position :

He supine on the Plantar the keeping the legs together heel posterior of the thigh, back palms of hands and scapular of the shoulder touching the ground and the face, chest, knees, toes of legs facing upwards.

Procedure :

- 1 Bring the knees close to the neck and that thigh touches the chest closely, chin and fingers of the legs faces upwards, knees bend at the level of nipples.
- 2 Raise the head first and this upper portion of the trunk slowly and shin touches the knees, tie the hands with one another on the shin to keep the knee close to chest as able as possible.

4. Savaasanam

Position :

Lie supine on the ground with hands feet apart.

Procedure :

- 1 Slightly stretch the body and allow the whole body to relax completely.
- 2 By concentrating the mind on different parts of the body starting from the toes to the head, a feeling of relaxation is propagated.

5. Maharaasanam – I

Stages of Maharaasanam - I

- 1 Ask the patient to lie in the supine position with the fingers showing Muththirai.
- 2 Turn the hip and lower limbs towards right side while the neck and head facing left side. Repeat the same in opposite direction.
- 3 Ask the patient to come back the initial position. Flex knee close to the thigh.
- 4 In the same position, ask the patient to turn the knee to the left side while neck & head facing towards right side.

- 5 Repeat the same in upward direction.
- 6 Ask the patient to come back the initial position. Hold the right leg over to left leg.
- 7 Turn the hip towards right side while head and neck facing towards right side. Repeat the same in opposite left direction.
- 8 Ask the patient to flex the left elbow and left knee. Repeat the same in opposite direction.
- 9 Ask the patient to come back to the supine position and relax.

Stages of Maharaasanam - II

- 1 Ask the patient to lie down in the floor fact, chest, palms, knees touches the floor as shown in fig - 1
- 2 Turn the face trunk and hip to the left side. Repeat the same in the right side.
- 3 Ask the patient to come back to the initial position. Hold the feet touch the thigh by flexing the knee.
- 4 Turn the feet to the left side while trunk and face towards right side.
- 5 Repeat the same in the opposite side. Ask the patient to hold the right leg over the left leg and turn the hip towards left side and then right side.
- 6 Ask the patient to raise the left upper limb and flex the right knee.
- 7 Repeat the same in opposite side. Ask patient to lie down relax.

(II) PIRANAAYAAMAM

Piraanaa means vital force or oxygen or cosmic energy.

Niyama means the control of the Piraanan.

Regular practice of the "Piraanaayaamam and Asanaas combined with control of the mind will combat negative elements such as ignorance, laziness, inertia and over excitement as well as increasing the will power.

Procedure :

One respiration consists of the cycle of inspiration, retention and expiration.

- 1 First, inhale one part of air through left nostril (Pooragam)
- 2 Then, retention must be done four parts of air (Kumbagam)

- 3 Then, exhale two parts of air through right nostril (Resagam)
- 4 Again inhale through right nostril
- 5 Then retention
- 6 And then exhale through left nostril.

These six events complete a cycle of Piraanaayaamam

The main object of Piraanaayaamam is to acquire mastery of the vital force, action within the body. It improves the functions of Piraanan, nourishes the body cells, purifies blood and tones up nerves.

OXYGEN FOR NERVES

The excitability of the central nervous system, i.e., its ability to become active, varies under different conditions.

One of the conditions for normal activity of the brain and spinal cord is an adequate supply of oxygen to the nerve cells. The cells of the brain and spinal cord consume much more oxygen than the cells of other organs. An inadequate supply of oxygen leads to a decrease in the nerve cells and may kill them. It is also clear that changes in the blood circulation in the brain impair the brain's activity because they disturb the normal supply of oxygen and nutrients.

ROLE OF THE NERVOUS SYSTEM

The nervous system regulates the activities of the different organs and of the entire organism. Muscular contraction, glandular secretion, heart action, metabolism and the many other processes continuously operating in the organism are controlled by the nervous system.

The nervous system links the various organs and systems, co-ordinates all their activities and ensures the integrity of the organism.

Human Anatomy and Physiology

by **V.TATARINOV**

In case of 'Pakkavaadham' Piraanaayaamam corrects the disturbed Piraanan tones up the nerves of affected area and also increases oxygenated blood to the body.

(III) THIYAANAM (MEDITATION)

“bfhy;yhd; bgha;Twhd; fstpyhd; vz;Fzd;
ey;yhd; mlf;f Kilahd; eLr;bra;a
ty;yhd; gFj;Jz;ghd; khrpyhd; fl;fhkk;
,y;yhd; ,akj;jpil apy;epd;whnd“

“Jha;ik mUSd; RUf;fk; bghiw brt;it
tha;ik epiyik tsh;j;jny kw;wpait
fhk'; fst[bfhiybadf; fhz;git
nekpaP iue;J epakj;j dhnk“

- jpU\yh;

Thiyaanam means the continuous flow of the mind towards "Aathmaa" (soul or mind) through the total exclusion of all ideas foreign to it. The principle disciplines for Thiyaanam are eyamam and niyamam. Eyamam includes non-violence, truth fullness, non-stealing, and sensation of all women as mothers and sisters except wife and not speaking and doing useless matters. Niyamam means outer and inner purity, contentment austerities, study of scripture and devotion to God. By Thiyaanam man can know himself, so it is helpful in stressful mental conditions and gives relaxation to mind.

“Yogic physical culture, unlike the many western systems of physical culture, does not make a pretence of merely developing the superficial muscles of the body, but the exercises do make them healthy and strong, particularly the trunk muscles, by requisitioning their help to tone up all the involuntary organs of the body which are mainly concerned with such processes as digestion, evacuation, circulation, respiration and secretion, and through them, the automatic nervous system which regulates their activities from “Yogic asanas for health and vigour” V.G.Rele, L.M & S., F.C.P.S.

In cases of Pakkavaadham, Thiyaanam gives complete rest to the body and provides relaxation.

(IV) EXERCISES :

EXERCISES FOR HAND

1. Stand in relaxed position

2. Raise both the upper limbs evenly upwards and join together above the head.
3. Bring the upper limbs as in the initial stage.
4. Raise both the upper limbs up to the shoulder level in front of the chest and join together.
5. Extend the upper limbs outwards to the maximum extend while facing the face and palms in same direction.
6. Move the right and left upper limbs alternatively and simultaneously back and front.
7. Raise the up to shoulder level and bring the forearm in front of the chest. Then hold both the thumbs touching together.
8. Stand in the relaxed position and turn the hip. Turn shoulder, neck and head to the left side and do the same turn towards right side.
9. Stand in the knee flexed position and turn the hip, trying to make a circle.

EXERCISES FOR LEGS

1. Ask the patient to sit comfortable as shown in fig.1
2. Bring the both great toes touching together.
3. Turn the both feet towards right side as shown in fig.3
4. Again turn the both feet towards left side as shown in fig.4
5. Flex the right knee and lie over the left thigh. Hold the toes by using the fingers.
6. Repeat the same exercise in the opposite side leg.
7. Ask the patient to be in knee down position, bring the fingers join together behind the hip.
8. Hold the hands in the same position supporting the hip.
9. Ask the patient to bring the fingers behind the buttocks.

5. PATHTHIYAM (Diet regimen)

Paththiyam is also an important part of treatment. It is divided into three types namely Echa Paththiyam, Kadum Paththiyam and Migakkadum paththiyam. Uppilla paththiyam is also mentioned in many ancient siddha literatures, especially for the vaadha diseases.

Uppillaa Paththiyam

The salt free dieting during treatment and then the same duration of salt free redieting are followed strictly. The day after fried salt must add in diet and taking oilboth with milk of Omam and cow's ghee. Then only salt may be added in diet.

With this, the following food and habits must also be followed. Add twicely cooked rice, brinjal, green vegetables and non-vegetables diet like kaadai (fhil) koudhaari (bfsjhhp) udumbu (cLk;g[]) and vellaadu (bts;shL)

Avoid the tubers and other Vaadha vitiated foods.

Avoid the exposure of Cold air.

The bed must be clean without moisture.

Keep the mind peaceful

Padhaarththa Guna Sindhaamani (gjhh;j;j Fz rpe;jhkzp) advices the following foods for Vaadha diseases.

Root of water lily (Pontedria vaginalis), Costus root (Costus specious), honey, black pepper (Piper nigrum), gingili oil, Asafoetida, Thazhudhaazhai, (Clerodendron phlomoides) Caster oil and Black gram.

" br';fG ePh;nfhI;le; njd;kpsF ey;byz;bza;
j';FbgU'; fha'; jGjhiH - v';bf';F
TI;LrpW Kj;Jbea; njhjpy; cGe;jpitfs;
thI;Lkzp yj;ij kjp"

- gjhh;j;j Fz rpe;jhkzp

Proper dietetic regimen enhances the effect and bioavailability of the drug and is conducive to the maintenance of good health. If dietetic regimen is not followed properly, certain foods may be incompatible and antagonize the drug effect and produce harmful effects to the body.

" gj;jpaj;jp dhny gyDz;lhFk; kUe;J
 gj;jpa';fs; nghdhy; gyd; nghFk; - gj;jpaj;jpy;
 gj;jpank btw;wpjUk; gz;ojUf; fhjypdhw;
 gj;jpank cj;jpbad;W ghh; "
 - njiuah; akf btz;gh

VAADHA PACIFYING FOOD LIST

Grains	:	Barley, Amaranth, Wheat, oats and Quinoa.
Legumes	:	Mung beans, Aduki beans, Split yellow mung dal, Red and yellow split pea. Urad dal. All these should be cooked to a soft consistency.
Fruits	:	Sweet and sour tastes, like grapes, lemons, pears, bananas, sweet oranges, dates, figs, apples (preferably cooked) avocados berries and a small amount of raisins.
Vegetables	:	Sweet vegetables like beets, cauliflower, leeks, carrots, asparagus, cilantro, fennel and a small amount of garlic, green beans, green chilies, okra, parsnips pumpkins and radishes (Preferably cooked)
Spices	:	Avoid using hot, pungent, drying spices. Use fresh spices like gingerroot, cilantro, cumin, coriander and fennel seeds, turmeric and asafoetida (hing)
Dairy	:	Fresh, whole and homogenized milk ghee and a small amount of butter.
Meats	:	White meat like chicken, fish, or turkey (Baked or broiled)

and chickens broth.

Nuts : A small amount of almonds, pecans and sesame seeds.

Oils : Sesame and olive in a smaller amount.

6.KANMA NEEKKAM (EXPIATION)

Kanma means the deeds which are bad, committed by an individual in this and previous births. So he must expiate, it to get better relief before the treatment.

To expiate the misdeeds of kanmam

Planting the young trees.

Establishing the gardens.

Laying roads and pathways.

Digging wells

Ponds for public use.

Constructing temples and

Denouements to poor children must be done.

"eypahny te;j fd;kk; jPubtd;why;
ed;ku';fs; njh;g;g[eilrhiy itj;jy;
bjspthd fpzWbtl;ly; Fs';fs; btl;ly;
bja;tjyk; nfhapy; fl;l; jPUk;ghU
vspjhd ghyfhf; fhguz kPjy;
vd;g bjd;w thjbky;yh tple;JnghFk;
gHpahd neha;te;jh ypg;gona bra;J
ghpthf itj;jpaj;iig; gpwF bra;na"

- mfj;jpah; fd;k fhz;lk; 300

MODERN ASPECTS ANATOMY

INTRODUCTION TO NERVOUS SYSTEM :

The nervous system which controls all motor and sensory functions of the body, may be divided into

- a) The central nervous system made of brain and spinal cord.
- b) The peripheral nervous system consisting of the peripheral nerves and ganglia associated with them.

In central nervous system, the brain consists of

1. The Cerebrum - comprising two large cerebral hemispheres
2. The Cerebellum
3. The Mid brain
4. The Pons

5. The Medulla oblongata

The Mid brain, the Pons and the Medulla together form the brain stem. The medulla is continuous below with the spinal cord. Peripheral nerves attached to the brain are called cranial nerves and those attached to the spinal cord are called spinal nerves.

In peripheral nervous system, the peripheral nerves include those that supply the skin, muscles, joints, limbs and those that supply visceral structures (e.g) heart, lungs, stomach etc. Each of these sets of peripheral nerves is intimately associated with the brain and spinal cord. The nerves supplying the body wall and limbs are often called cerebrospinal nerves. The nerves supplying the viscera along with the parts of the brain and spinal cord related to them constitute the autonomic nervous system. The autonomic nervous system is subdivided into two major parts as sympathetic and parasympathetic nervous system.

The specialized cells that constitute the functional units of nervous system are called "Neurons". Neurons are supported by a special kind of connective tissue called neuroglia. The nervous tissue is richly supplied with blood.

A neuron consists of a cell body that gives off a variable number of processes. Most neurons give off a number of short branching processes called "Dendrites" and one large process called an 'Axon'. In a dendrite the nerve impulse travels towards the cell body, where as in an axon the impulse travels away from the cell body Axons having a myelin sheath are said to be myelinated and those without it are said to be unmyelinated.

The peripheral nerves are collections of nerve fibres, these fibres are simply axons. In some cases they are dendrites that are indistinguishable in structure from axons.

An axon may give off a variable number of branches. An axon can terminate in two ways. Within the central nervous system the axon always terminates by meeting another neuron. The junction between the two neurons is called a synapse. Outside the central nervous system, the axon may end in relation to a muscle or to a gland or may end by synapsing with neurons in a peripheral ganglion.

FORMATION OF CENTRAL NERVOUS SYSTEM

The nervous system developed from the ectoderm called neural ectoderm. It is formed anterior to the Hensen's node of embryo. The neural ectoderm will become neural groove. The neural groove deepens and develops lips elevated in either side. The elevated lips of neural tube are becoming brain vesicles. The brain vesicle is divided into three bulb-like swellings called Prosencephalon, Mesencephalon and Rhombencephalon.

1. PROSENCEPHALON :

It is otherwise called as fore brain which is divided into Telencephalon and Diencephalon. The telencephalon becomes cerebral hemispheres and forms a cavity called lateral ventricles. The diencephalon becomes thalamus and forms a cavity called third ventricle.

2. MESENCEPHALON :

It is otherwise called as mid brain and forms a cavity called cerebral aqueduct.

3. RHOMBENCEPHALON :

It is otherwise called as Hind brain which forms a cavity called IV ventricle. The rhombencephalon is divided into mesencephalon and myelencephalon which becomes (i) Cerebellum (ii) Pons and Medulla oblongata consequently.

4. NEURAL TUBE :

It becomes spinal cord and forms a cavity called central canal of spinal cord.

PARTS OF THE BRAIN :

The brain is made up of

- (i) A pair of Cerebral hemispheres
- (ii) A pair of Cerebellar hemispheres
- (iii) Mid brain
- (iv) Pons
- (v) Medulla oblongata

The nuclei of the oculomotor and trochlear nerves are situated in the mid brain. The nuclei of the trigeminal, abducent, facial and a part of vestibulo cochlear nerve are found in the pons. A part of the nucleus of vestibulo cochlear nerve, nucleus of glosso pharyngeal, vagus, accessory and hypoglossal nerves are found in the medulla oblongata.

The brain and the spinal cord are covered by meninges. The meninges has three layers.

- 1. Duramater - Innermost layer
- 2. Arachnoid - Middle layer
- 3. Piamater - Outer most layer

The duramater covering the brain has two layers. Here and there venous sinuses are situated between these two layers. Venous sinuses are connected with veins of the scalp and the veins of the face via emissary veins. So infection from these areas spread to the brain via emissary veins. The subarachnoid space contains cerebro spinal fluid, which is diagnostic important for the diseases of the brain of meninges.

ANATOMY OF THE BRAIN

CEREBRUM :

The cerebral hemispheres are two in numbers. They are separated by median longitudinal fissure. They are united by corpus callosum. The falx cerebri is a fold of duramater separates the two cerebral hemispheres. Each hemisphere is having three

border, three poles and three surfaces. The borders are superomedial, inferomedial and inferolateral border. The surfaces are superolateral, medial and inferior surfaces. The poles are frontal, temporal and occipital poles. The surfaces of hemisphere have elevations and depressions. Elevations are gyri and depressions are sulci.

LOBULATIONS :

The cerebrum has four lobes frontal, parietal, temporal and occipital.

(i) Frontal Lobe :

It is bounded anteriorly by frontal pole, posteriorly by central sulcus, superiorly superomedial border, inferiorly inferolateral border and posterior ramus of lateral sulcus.

In the motor and in the sensory cortex (Pre-central gyrus and Post -Central gyrus) the functional areas of the body is respected upside down i.e., leg is the uppermost part and the larynx in the lower most part. This arrangement is called as "Homunculus representation". In front of the central sulcus pre central gyrus is situated, it is the motor area of the opposite half of the body. In the frontal lobe there are superior frontal sulcus and inferior frontal sulcus. So the frontal lobe has got

1. Pre central gyrus (Broadman's area No.IV)
2. Superior frontal gyrus
3. Middle frontal gyrus
4. Inferior frontal gyrus

The anterior and ascending rami of the lateral sulcus passes into the inferior frontal gyrus. So inferior frontal gyrus is divided into pars orbitalis, pars triangularis and pars opercularis. These areas are together called 'Broca's area' or motor speech area (Area No.44 & 45). The basic functions of the frontal cortex are

1. Motor function of the opposite half of the body
2. Motor speech function
3. Personality, behaviour and intelligence
4. Frontal eye field.

Frontal lobe calculates the future life. So it has hindsight, insight and foresight.

TEMPORAL LOBE :

From the posterior ramus of lateral sulcus a line is drawn to the imaginary line between the parieto occipito sulcus and pre occipital notch. The line separates the "Temporal Lobe".

In the temporal lobe there are superior temporal sulcus and inferior temporal sulcus. So the temporal lobe is divided into (i) superior temporal gyrus (ii) middle temporal gyrus (iii) Inferior temporal gyrus. In the middle of the superior temporal gyrus the "Auditory area" is situated. Just above the auditory area in the frontal lobe there are motor speech area and area for the larynx. A pathological lesion around these areas causing "Deaf Mutism".

The temporal pole is turned inwards to become uncus. The uncus will be having "Smell function". In certain conditions of convulsions the patient first feels a new smell sensation following that the development of convulsions or fits. This is called uncinat fits.

PARIETAL LOBE :

Anteriorly bounded by central sulcus, posteriorly imaginary line between parieto occipital notch, superiorly supero medial border, inferiorly posterior ramus of the lateral sulcus and line drawn backwards.

Parietal lobe is situated posterior to the central sulcus. Behind central sulcus posterior central gyrus is seen. The posterior central gyrus is the sensory area of the opposite half of the body,

(The Broadman's area 1,2,3). The post central gyrus receives almost all sensations except visual and auditory. The touch, pressure, temperature, pain etc. are received by the posterior central gyrus. Intra parietal sulcus divides the parietal lobes into superior parietal lobules and inferior parietal lobule. The posterior ramus of the lateral sulcus, the superior temporal sulcus and inferior temporal sulcus are passing into the inferior parietal lobule. Memory is the chief function of the superior parietal lobule. Stereognostic function is the chief function of the inferior parietal lobule.

OCCIPITAL LOBE :

3 cm in front of the occipital pole in the superior medial border, parieto occipital sulcus is situated. 5 cm in front of the occipital pole in the infero lateral border pre-occipital notch is situated. An imaginary line is drawn on parieto occipital sulcus and pre-occipital notch. This line will separate the occipital lobe. On the lateral surface of the occipital lobe there is transverse occipital sulcus. Behind that lunette sulcus is situated. the visual areas i.e., visuuo-sensory and visuuo-psychic (area 17, 18, 19) are situated here. The parieto occipital sulcus is surrounded by a gyrus called Arcus parieto occipitalis.

BLOOD SUPPLY :

The brain is requiring continuous supply of the blood for its normal biochemical activity. Stoppage of blood for few seconds will damage the brain substances permanently. The vascular supply is by means of the circle of willi's (the polygon of willi's) This arterial circle is situated in the subarachnoid space of the peduncular fossa.

FORMATION OF CIRCLE OF WILLI'S

Circle of willi's is formed by the combination of vertebral system and carotid system.

1. A pair of vertebral artery unite at the lower border of the pons to form basilar artery.
2. The basilar artery is ultimately dividing into a pair of posterior cerebral artery.
3. The penultimate branches formed from basilar artery are superior cerebellar artery.
4. Internal carotid arteries lateral to the optic chiasma gives anterior cerebral artery and continuous as middle cerebral artery.
5. The posterior communication artery is a branch of internal carotid joins posterior cerebral artery.

Three pairs of arteries supply the cerebrum

1. Anterior cerebral artery

2. Posterior cerebral artery
3. Middle cerebral artery

The interior of the cerebrum will be supplied by central arteries are arranged in six groups.

1. Antero medial group
2. Right and Left antero lateral group
3. Posterior medial group
4. Right and Left postero lateral group

All central arteries joined together to constitute the vascular bed of monacou. Of all the central arteries, one of the central artery from the middle cerebral artery is called the artery of "Charcot" or artery of cerebral haemorrhage and this is the commonest artery involved in the "Hemiplegia" due to cerebral haemorrhage.

BLOOD BRAIN BARRIER :

The Blood Brain Barrier (BBB) is constituted by certain structures that separate the blood inside the blood vessels and brain substance. In the lateral part near the cortex, the BBB is formed by

1. The perivascular sheath formed from piamater
2. The space of "Robin virchou"
3. Tunica adventesia, Tunica media and tunica intima of the blood vessel.

Nearer to the interior of the cerebrum no perivascular sheath. There is only intima separating brain and blood. So from there blood vesicles, nutrients, hormones, drugs, are easily perfuse into the brain substance. These blood vessels are fine in texture so they cannot tolerate great pressures. They rupture if the blood pressure is increased and this caused cerebral haemorrhage.

The arteries that supply superior lateral surface are

1. Middle cerebral artery
2. Anterior cerebral artery
3. Posterior cerebral artery

Functionally middle cerebral artery supplies

- (i) Motor area of the opposite half of the body except leg and perineum.
- (ii) Auditory area
- (iii) Motor speech area
- (iv) Area of the frontal lobe maintains personality behavior, intelligence and memory areas.

The anterior cerebral artery supplies the upper border in the supero lateral mainly motor and sensory cortex of the leg and perineum.

TENTORIAL SURFACE :

Uncus is supplied by middle cerebral artery. The rest of the tentorial surface is supplied by posterior cerebral artery that supplies visual area.

The middle cerebral artery gives Lenticulo striate artery or artery of cerebral haemorrhage or artery of charcot. This artery pierces inside the lateral sulcus. It traverses (i) claustrum (ii) external capsule (iii) lentiform nucleus (iv) internal capsule (v) thalamus. This artery supplies the lentiform nucleus, caudate nucleus and thalamus.

Anterior cerebral artery supplies medial surface of the cerebrum above the corpus callosum, upto the parieto occipital sulcus so paracentral lobule is supplied by anterior cerebral artery. Anterior cerebral artery controls the functions of the defaecation, micturition and parturition. Abnormally there may be an unpaired anterior cerebral artery. Obstruction of this artery is a common cause for paraplegia.

CORTICO SPINAL TRACT :

The cerebral cortex has nerve cells called "Betz" cells. The largest cells of these nerve cells pass downwards into the cerebrum to form the "corona radiata". The corona radiata descends between caudate nucleus and thalamus on the medial side, lentiform nucleus on the lateral side. Now it is called "internal capsule". The internal capsule descends into mid brain as "Cortico spinal tract" it is found within the cerebral peduncle of mid brain, it thus passes down into the pons and medulla oblongata. In the medulla oblongata rest of the fibres cross and to the opposite side to form lateral cortico spinal tract. The fibres that do not cross descend on the same side to form anterior cortico

spinal tract. The fibres of the lateral cortico tract pass into the ventral ramus of the spinal nerves to supply muscles.

INTERNAL CAPSULE :

This is a compact layer of white mater with in the cerebral hemisphere. It is the downward continuation of "corona radiata". It is situated in the interval bounded medially by caudate nucleus and thalamus laterally by lentiform nucleus.

Frontoponto fibres originate from the frontal cortex, passes through the anterior limb of external capsule. It descends into medial 1/5th of the cerebral peduncle. It enters the pons, it crosses to the opposite side, it synapsis with the nuclei pontis. From the nuclei pontis fresh fibres arise and go to the cerebellum. So these fibres may be better called as fronto ponto cerebellar fibres.

"Genu" is a bent of the internal capsule. It is situate between anterior limp. It mainly contains.

1. Cortico nuclear tract
2. A part of superior thalamic radiation. The cortico nuclear tract is extending from the motor cerebral cortex to the motor cranial nerve nuclear tube 3rd, 4th, 6th a part of 5th, 7th a part of 9th, 10th, 11th and 12th mainly to the opposite side.

The nucleus of the facial nerve receiving cortico nuclear tract from both cerebral hemispheres. So if one cerebral hemisphere is affected, the upper half of the face will not be paralysed, because it is supplied by opposite cortico nuclear tract.

The cortico cerebral fibres formed from the motor cortex, they pass through the posterior limb of internal capsule and enter the red nucleus of mid brain. They belong to extra pyramidal system. Pathology of this tract cause "Parkinsonism" disease.

Injuries involving the mid brain affecting cortico spinal tract and oculomotor nerve is called weber's syndrome. In this hemiplegia of the opposite side oculomotor nerve paralysis of the same side. (Eyeball is deviated laterally)

Injuries involving cortico spinal tract, red nucleus, oculomotor nerve is called benedict's syndrome. In this (1) hemiplegia of opposite side (2) oculomotor paralysis of the same side (3) Tremors or parkinsonism disorders on the same side.

The internal capsule which vascular supply is divided into upper half and lower half.

- (i) The upper half is supplied by direct branches of the middle cerebral artery like Lenticulo striate artery or artery of charcot or the artery of cerebral haemorrhage.
- (ii) The lower half of the internal capsule is supplied by
 1. Anterior cerebral artery (Artery of Hubanar)
 2. Posterior communicating artery
 3. Choroidal artery

The injury to Lenticulo striate artery cause commonest type of cerebral haemorrhage.

Corpus callosum is a median band of white mater connecting both cerebral hemispheres, it is a mammalian feature. It is situated in the floor of the median longitudinal fissure having "C" shaped callosal syndrome is due to pathological lesions in the corpus callosaum i.e., inability to match or identify anything kept in the left hand.

VENTRICLES :

There are two lateral ventricles, III ventricle and IV ventricle. III Ventricle communicates with IV ventricle via cerebral aqueduct. IV ventricle communicates with saggital sinus via arachnoid villi and granulations septum pellucidum separates both lateral ventricles.

CEREBELLUM :

It is situated in the posterior cranial fossa. It is made up of two hemispheres united by vermis. Cerebellum is found dorsal to pons, medulla and IV ventricle. Cerebellum is connected to the other parts of nervous system through the peduncles connect the mid brain and cerebellum.

BLOOD SUPPLY :

Vascular supply through

1. Superior cerebellar artery
2. Anterior inferior cerebellar artery

3. Posterior inferior cerebellar artery

Cerebellum may be damaged in alcoholics or drug and all head injuries. So the functions of the cerebellum are lost in the affected side due to cerebellar paralysis.

- (i) Titubation (Shaky movements of the head)
- (ii) Shaky movements of the hands and foot
- (iii) Not able to fix the vision to the object, vertigo, headache, vomiting etc.,

EXTRA PYRAMIDAL SYSTEM (Basal ganglion)

The muscle function is done by motor or pyramidal and extra pyramidal system with the help of cerebellum. The basal ganglion forms the major part of extra pyramidal system. The neuro transmitting substance of this system is called Dopamine, from Tyrosine. When dopamine is not secreted it causes a clinical condition called "Parkinsonism" disease or paralytic agitante.

MID BRAIN :

It is embryologically developed from the mesencephalon. It has got the nuclei of the oculomotor and trochlear nerve. It is situated in the posterior cranial fossa. In the lower part of the mid brain, nucleus of the trochlear nerve persists into tegmentum. It runs dorsally and it decussates, emerges on the dorsal surface of mid brain. It is the only cranial nerve emerging from the dorsal surface of brain.

PONS :

It is situated between medulla oblongata and mid brain. It is ventral to the IVth ventricle. In the ventral surface of the pons there is midline sulcus called basilar sulcus. This sulcus lodges basilar artery either sides of basilar sulcus elevation caused by cortico spinal tract. Pinpoint pupil, fever, headache, and hemiplegia of the opposite side should be diagnosed as hemiplegia due to pontine haemorrhage.

MEDULLA OBLONGATA :

It extends from the lower border of the pons to the upper border of the atlas and it is continued downwards in the spinal cord.

1. Between the pyramid and the pons 'Abducent nerve' emerges.
2. Between the olive and the pons "Facial nerve" emerges.
3. Posterior spinal artery
4. Posterior inferior cerebellar artery

Obstruction of the posterior inferior cerebellar artery cause lateral medullary syndrome. So the patient has symptoms of paralysis of medulla oblongata and its cranial nerves with cerebellar paralysis.

APPLIED PHYSIOLOGICAL ANATOMY OF THE NERVOUS SYSTEM :

The central nervous system consists of vast numbers of neurons, both afferent and efferent. A neuron is a nerve cell with its dendrites and axon. The nerve cells are found in the gray matter of the cortex, basal ganglion and nuclei. The central gray matter of the spinal cord and in posterior root ganglion. The axons are collected into bundles or tracts and run mostly in the white matter and peripheral nerves. The nerve impulse travels at different rates in different nerves. A synapse or junction between two neurons will allow an impulse to pass one direction only. At the synapse a chemical change occurs acetyl - choline may be released. In central synapses by the passage of the impulse and is split by an enzyme cholinesterase. This effect is also observed at the end organs of many peripheral neurons (e.g) neuromuscular junction. Not all central synapses however are cholinergic, the mediator in non-cholinergic synapses is not known.

The brain is provided with a number of enzymes, which serve its metabolism. Some of these regulate the supply of glucose to brain cells by oxidizing carbohydrate.

Carbohydrate is broken down to pyruvic acid, before being oxidized to CO_2 and H_2O by a second path pyruvic acid is not an intermediary product of carbohydrate breakdown. An absence of aneurine (which acts as a catalyst) from the diet will lead to accumulation of pyruvates in the blood and CSF. In brain cell metabolism protein and amino acids seem to be less important although recent work suggests that glutamic acid (an amino acid) plays an important role.

HEMIPLEGIA

"Hemiplegia" means paralysis of the one half of the body due to the involvement of opposite half of the brain. The face is also affected.

Causes :

1. Vascular
2. Traumatic
3. Transient ischaemic attack
4. Neoplastic or malignancy
5. Biological causes or infection
6. Congenital causes

The vascular causes chiefly involve

- (a) Cerebral thrombosis
- (b) Cerebral haemorrhage
- (c) Cerebral embolism

The traumatic causes mostly due to depressed fractures of the skull bone.

Transient ischaemic attack i.e., sudden loss of blood supply to the brain for a brief time. Hemiplegia may occur and recover within few minutes. Neoplastic causes due to tumours. The patient has slow progressive, head ache, hemiplegia, fits etc., Infection due to bacterial and viral, tuberculosis, syphilis, viral encephalitis, meningitis etc., causing hemiplegia and congenital causes.

HEMIPLEGIA DUE TO CEREBRAL THROMBOSIS :

A thrombus is blood coagulant occurring within a blood vessel or heart during life. The thrombus may be

1. White thrombus

2. Red thrombus
3. Agonal thrombus

Commonest causes of "hemiplegia" cerebral thrombosis. Commonest artery affected is middle cerebral artery. Commonest hemisphere involved is left cerebral hemisphere. Commonest site for cerebral thrombus is internal capsule.

Cerebral thrombosis occurs during rest or sleep. Both sexes are equally affected. It occurs after middle age usually during sleep or rest. The patient develops,

1. Convulsive seizures
2. Head ache
3. Hemiparesis or hemiplegia

The patient dazed for few hours and gradually regaining conscious.

CAUSES FOR CEREBRAL THROMBOSIS

- a) Hypertension
- b) Atherosclerosis
- c) Arteriosclerosis
- d) Diabetes mellitus
- e) Infectious diseases like TB, syphilis etc.,
- f) Moyo moyo disease
- g) Ergot poisoning

Blood causes :

- a) Dehydration
- b) Polycythemia
- c) Leukemia
- d) Thrombocytosis
- e) Increasing clotting factors in the blood
- f) Excessive use of oral contraceptive pills
- g) Paroxysmal nocturnal haemoglobinuria
- h) Berger's disease
- i) Sickle cell anaemia

- j) Collagenous diseases like
1. Rheumatoid arthritis
 2. Systemic lupus erythematosus
 3. Poly arthritis nodosa

On examination of patients, heart remains normal, pulse remains normal and respiration remains normal.

After regaining consciousness, the patient may show aphasia, vision may be normal or hemianopia. Sensation on the affected side is normal.

The patient may show supra nuclear type of facial nerve paralysis (Upper half of the face on the affected side remains normal)

Paralysis of the hypoglossal nucleus, so tongue deviates towards affected side. The superficial reflexes like abdominal reflex, cremasteric reflex are absent or poor. Plantar reflex is extensor in type. Deep reflexes like knee jerk, biceps, triceps jerk are exaggerated. Gait is circumduction. In this gait the pelvis is tilted, arm is adducted, elbow, wrist and fingers are flexed.

HEMIPLEGIA DUE TO CEREBRAL EMBOLISM

An embolus means a moving particle in the blood vessel. Embolus may be formed within the blood vessel or formed outside the blood vessel and enter into the blood vessel. Embolism causing obstruction.

Embolism obstructing cerebral arteries especially middle cerebral artery causes "Hemiplegia"

I. Cardiac causes

- (A) Mitral stenosis
- (B) Syphilitic aortitis
- (C) Valve prosthesis
- (D) Valve prolapse
- (E) Subacute bacterial endocarditis
- (F) Ventricular arrhythmias
- (G) Myocardial infarction

(H) Paradoxical embolism

II. Pulmonary causes

- (A) Bronchiectasis
- (B) Thrombosis of pulmonary vein
- (C) Bronchogenic carcinoma
- (D) Lung abscess

III. Other causes :

- (A) Amniotic fluid embolism in case of females
- (B) Deep vein thrombosis
- (C) Fat embolism after fracture of long bones like femur, tibia.
- (D) Aneurysm of carotid artery.

The person develops hemiplegia suddenly or spontaneously. Features of the hemiplegia same like thrombosis. Females and young persons more affected. Blood pressure, pulse, respiration usually remain normal. Final diagnosis usually done by C.T scan and MRI.

HEMIPLEGIA DUE TO CEREBRAL HAEMORRHAGE

It is a fatal cerebro vascular accident (CVA). It occurs usually after the age of 40. Mostly females are affected.

- 1) Hypertension
- 2) Hypertension with left ventricular hypertrophy
- 3) Coagulation factors defect e.g., Thrombocytopenia
- 4) Anti coagulant therapy
- 5) Bleeding occurs in the tumours of the brain
- 6) Inflammation of the cerebral arteries and veins
- 7) Idiopathic or congenital causes

Haemorrhage occurs during active period of life with exertion emotion and exercises.

PATHOLOGY :

The Lenticulo striate artery or artery of haemorrhage is the mostly affected artery. Rupture of this artery, intracranial causes haemorrhage. The extravassated blood tearing the lentiform nucleus, internal capsule, thalamus and the blood enters the ventricular (III ventricle) system. From the ventricles the blood enters sub-arachnoid space. It then compresses vital centers of the brain - causing coma, gradually leading to death.

CLINICAL SIGNS AND SYMPTOMS :

Usually a female individual after the age of 40, hypertensive may be affected.

Patient is comotosed, pupil is irregular on one side Gradually both the pupils enlarged.

Conjugate deviation of the eye towards affected side, face and head turning towards affected side. Sweating of the face on the affected side and the face is congested.

Involuntary evacuation of faces and urine is present. Extensor - plantar reflex, abdominal reflexes lost on both sides. Deep reflexes like biceps jerk, triceps jerk, ankle jerk, knee jerk etc., are usually absent or poor on the affected side. Usually the total involvement of cortex by obstruction of the middle cerebral artery rarely occurs. The commonest involved is internal capsule.

DIFFERENCES BETWEEN THROMBOSIS, EMBOLISM AND HEMORRHAGE

		THROMBOSIS	EMBOLISM	HEMORRHAGE
1	Age	Middle or old	Young	Middle or old
2	Onset	Sudden or progressive	Instantaneous	Catastrophic and progresses rapidly
3	Premonitory symptoms	May be present	Absent	Absent
4	Sings of increased intractranial tension	Absent	Absent	Usually, Present - headache, vomiting, unconsciousness
5	Convulsions	Rare	Common	Usually absent
6	Neck stiffness	Absent	Absent	Frequent
7	Conjugate deviation	Absent	Absent	Present

	of the eyes			
8	B.P	High	Normal	Usually high
9	Leucocytosis	Absent	Absent	Common
10	CSF	Usually Normal	Normal	Blood stained, increased pressure
11	Recovery	Usual	Usual	Not so

DIFFERENCES BETWEEN UPPER MOTOR NEURONE AND LOWER MOTOR NEURONE DISEASES

		UPPER MOTOR NEURONE	LOWER MOTOR NEURONE
1	Affection	Muscle groups	Individual muscle
2	Tone	Clasp knife spasticity	Flaccidity
3	Nutrition	Slight wasting due to disuse	Marked wasting
4	Involuntary	Flexor spasms sometimes	Fasciculations sometimes
5	Reflexes	Deep jerks brisk, plantar extensor	Deep jerks absent, plantar flexor
6	Electrical reaction	Normal	Reaction of degeneration

LESIONS :

Pyramidal lesions may occur at various levels and produce the following clinical symptoms.

a) CORTICAL LEVEL :

During to the extensive distribution of motor cells on the cortex a focal lesion will produce monoplegia which is at first flaccid. If the lesion extends more deeply involving mainly pyramidal fibres, the symptoms will be more wide spread and spasticity will be present. Motor jacksonian fits will occur as the irrelative sign. A vertical lesion over both cortical areas will cause paraplegia, a paralysis of both lower limbs.

b) INTERNAL CAPSULE :

The convergence of the pyramidal fibres here in such that a relatively small lesion will produce a complete hemiplegia. In the lesion of the genu, the arm is more affected than the leg. In lesion back there is hemianesthesia and perhaps hemianopia, from involvement of the sensory fibres and optic radiation.

In "Hemiplegia" there is an unilateral loss of voluntary power in the affected arm, leg and in the lower face. The tongue is protruded towards the paralysed side. The muscles of mastication and swallowing and the trunk muscles that have a bilateral pyramidal nerve supply from the cortex usually escape. "Clasp knife" spasticity with hypertonus appear in the affected limbs, in the arm it predominate in the flexors and adductors so that it is held adducted at shoulder, flexed at the elbow and wrist with the forearm slightly pronated. The movements of the hands and fingers are more affected than are those of upper arm. In the legs, the hyper tonus predominates in the extensors and adductors while the chief loss of movement is that of dorsi flexion of the foot. The tendon reflexes become exaggerated, ankle and patellar clonus may develop. The planter response is extensor and the abdominal reflexes on the same side disappear, the lower abdominal reflexes before the upper.

Signs of the UMN Lesions.

1. Loss of voluntary power
2. Spasticity of the Clasp - Knife type
3. Increased tendon reflexes with ankle and patellar clonus
4. Extensor plantar responses with absence of abdominal reflexes.
5. Normal electrical reactions in the affected muscles.

DIFFERENTIAL DIAGNOSIS :

1. HYPERTENSIVE ENCEPHALOPATHY

a) Due to cerebral disturbances

1. Sudden onset of headache, vomiting, unconsciousness
2. Focal neurological signs e.g cortical blindness hemiplegia, speech disturbances etc.,
3. Meningeal signs like neck stiffness.

b) Evidence of severe hypertension :

1. Symptoms and signs of raised intracranial tension
2. Focal symptoms e.g hemiplegia, convulsions.

3. Signs and symptoms of compression and infiltration to the surrounding tissues.
E.g., Pituitary tumour pressing on the optic chiasma causing blindness.

EXAMINATION OF THE NERVOUS SYSTEM :

1. Mental state and Intellectual functions :

- a) Ascertain if the memory is good or impaired by asking questions about known events in the patient's past history.
- b) Next investigation is the speech functions. Is the patient right handed or left hand speech functions are localized in the left cerebral hemispheres in the right - handed person and vice versa. Test for motor aphasia i.e., loss of power of speech, agraphia i.e., loss of power of writing, word deafness i.e., inability to understand spoken questions as evident by failure to touch the nose or to smile on being asked to do so and word blindness i.e., inability to understand written questions.

II. EXAMINATION OF THE CRANIAL NERVES :

1. Olfactory Nerve :

Can the patient smell? Anosmia or loss of sense of smell is due to meningioma in the olfactory groove or tumour at the base of the frontal lobe. Parosmia or perversion of sense of smell may be present in a lesion of the uncinate gyrus.

2. Optic Nerve :

The degree of loss of vision is tested by asking the patient to read different letter types or to count fingers. In suitable cases ophthalmoscopic examination and perimetry for the visual field must be undertaken by an expert. The field of vision can be roughly estimated by asking the patient to gaze straight ahead at a fixed object and then moving a small object. Eg. A white pinhead from the periphery to the center of the visual field first horizontally and then vertically.

3,4 and 5th oculomotor, trochlear and abducent nerve :

Look at the pupil and note their size and shape whether abnormally dilated or contracted. Determine whether they react normally to light and accommodation. The reaction to light is tested by showing light on to the pupil and the reaction to accommodation, by asking the patient to look first, at same distant object and then at the finger held in front of the eyes. Normally the pupils contract in each case.

TEST THE OCULAR MOVEMENTS :

The patient with his head held fixed is asked to move the eyes in turn to the right, to the left, upwards and downwards as far as possible in each direction. Any limitation of movement is noted. Ask the patient if he has seen double (diplopia) in any direction. Note also if there is squint, ptosis or nystagmus. Nystagmus indicates a lesion of the cerebellum or the vestibular apparatus. Is there conjugate deviation? If so, note the direction. In lesions of cerebral hemisphere, the eyes are directed towards the side of a paralytic lesion but away from the side of an irritative lesion.

In lesions of pons, on the other hand, the eyes look towards irritative lesion and away from the paralytic lesion.

OCULOMOTOR NERVE PARALYSIS :

Complete paralysis of this nerve leads to

- 1) Ptosis (due to paralysis of the levator palpebrae superioris)
- 2) Extero inferior squint (Due to unopposed action of the external rectus) (abducent nerve) and inferior oblique (trochlear nerve)
- 3) Inability to move the eye ball inwards or upwards
- 4) Dilatation of the pupil with loss of light and accommodation reflexes.
- 5) Diplopia.

TROCHLEAR NERVE PARALYSIS :

Downward and outward movement of the eyeball is impaired and diplopia occurs when such a movement is attempted.

ABDUCENT NERVE PARALYSIS :

There is internal squint and inability to move the eye outwards when such movement is attempted diplopia occurs.

TRIGEMINAL NERVE :

- a. Feel the masseter and the temporalis muscles of both sides simultaneously while the patient clinches the teeth.
- b. On asking the patient to open his mouth, the jaw will deviate towards the affected side owing to paralysis of the pterygoids.

Sensory Function :

All sensations, over the face supplied by the three divisions of the trigeminal nerve will be lost. The sensation of the conjunctiva, nasal mucosa and anterior 2/3 of the tongue will also be lost. The patient should not speak but write down what he tastes.

Reflexes :

Test for the reflex sneezing (by tickling the nasal mucosa) and the corneal reflex. These will be absent if the nerve is paralysed.

Facial nerve :

Observe that the nasolabial fold and the furrows of the brow are less marked on the affected side. The angle of the mouth is down to the sound side.

Motor Function :

Ask the patient to show his teeth when the angle of the mouth will be drawn to the healthy side. Ask the patient to puff of the cheeks, the paralysed side bellows out more than the normal side. Ask the patient to shut his eyes. He will not be able to close the eyes on the affected side and on attempting to do so the eye ball will be seen to roll upwards. Ask the patient to move his eyebrows upwards, the paralysis side remains immobile.

In supranuclear paralysis (UMN lesions) the upper part of the face escapes owing to bilateral cortical representation.

Auditory nerve :

Test the patient's power of hearing by means of a watch which is gradually brought to the ear with the eyes closed, note the distance at which he can hear. As the power of hearing may be lost due to affections other than involvement of the auditory nerve. Rinne's test should be employed.

Glosso Pharyngeal nerve :

Test for the loss of sensation of the posterior third of the tongue and the back of the pharynx with a probe, first on one half, then on the other and note if there any difference.

Vagus nerve :

Ask the patient to open the mouth, depress the tongue with a spatula and watch the movements of the palate as the patient says "Aah". In paralysis, the affected half of the palate will remain immobile.

Accessory nerve :

The sternomastoid muscle should be tested for paralysis by asking the patient to turn his face to the other side, while resistance is offered to the act by the hand over the chin. The paralysed muscle will not stand out prominently. Test also for paralysis of the trapezius.

Hypoglossal nerve :

Ask the patient to put out his tongue. In paralysis the tip of the tongue at once points to the paralysed side. The patient is also unable to move the tongue to the other side. In long standing cases atrophy of the affected half of the tongue becomes evident.

INVESTIGATION OF MOTOR FUNCTIONS

A patient who can walk and move his upper limbs freely, is not suffering from any gross paralysis. Investigation for paralysis or weakness of different groups of muscles should be made, when necessary. The degree of co ordination of muscular action is next determined. The patient is asked,

1. To Extend his arm and then to bring his forefinger to the tip of his nose keeping his eyes closed, in the presence of in co-ordination, he will not be able to do this.
2. Walking along a straight line is difficult if there is in co-ordination.
3. Rapid movements of pronation and supination of the forearm with the elbow at a right angle are either not possible or slow in cases of cerebellar lesions.
4. The patient is asked to stand with his feet close together. He stretches out his arms and close his eyes. If he sways then Romberg's sign is positive.

Gait :

Gait of a patient is observed on the following points.

1. Ask him to walk normally and then study
2. Ask him to walk on a straight line
3. In case of any deviation note the side
4. In case of fall note the side
5. Whether he has any of the typical gaits.

For the investigation of motor system, the involuntary movements and their clinical types are studied.

INVESTIGATION OF SENSORY FUNCTIONS :

(A) SUPERFICIAL SENSATION

1. Touch : Tested by a cotton wool touched lightly to the skin it is either normal, hypoesthesia or hyperesthesia
2. Temperature : Hot and cold sensations are tested separately.
3. Dissociated anaesthesia : Loss of pain and temperature sensation with preservation of touch.
4. Tactile extinction : Two stimuli applied on two identical points of body on either side of body shows the affected side failing to appreciate touch.

5. Graphaesthesia : Patients eyes closed. Figures drawn by a blunt point on skin should be recognized by patient normally.

Deep Sensations :

1. Joint sense : With eyes closed and patient in relaxed state, his toe or thumb is passively moved up and down at the terminal joint and he is asked to recognize position. Involved in posterior column disease.
2. Sense of position and passive movement : Patient's eyes closed, his any extremity is moved and kept in a particular position, and he is asked to repeat the same with the other limb involved in the lesions of sensory motor cortex.
3. Deep pressure pain
4. Vibration sense is tested against any bony prominence involved in disease of the posterior column
5. Weight sense recognizing weight of two objects in two palms. The object has same shape but different weights.

STEREOGNOSIS :

Recognising of an object by feel only. Involved in lesions of post central gyrus, subcortical parietal region, thalamus, or the lower part of the medulla.

REFLEXES :

In lesion of the pyramidal system all deep tendon reflexes are exaggerated, sometimes so much that a clonus can be elicited.

The superficial or skin reflexes are diminished or absent or altered in plantar reflex.

Gradation of the Reflexes :

Grade	:	0	Absence
Grade	:	1	Present
Grade	:	2	Brisk

Grade	:	3	Very Brisk
Grade	:	4	Clonus

METHOD :

A. BICEPS JERK :- (C₅-C₆)

Grasp the patients elbow with the left hand so that the thumb rests on the biceps tendon. A tap on the examiner's thumb elicits contraction of the biceps.

B. TRICEPS JERK :- (C₆ C₇ & C₈)

A tap just above the olecranon with the elbow flexed will bring about contraction of the triceps.

C. KNEE JERK :-

The patient should sit with one knee crossed over the other or if he is unable to sit, the flexed knee is allowed to rest on the clinician's hand. Now a sharp blow on the ligament patellae with the edge of the hand or with a percussion hammer will elicit a brisk contraction of the quadriceps, the leg being extended with a jerk.

D. ANKLE JERK :-

The foot is dorsiflexed slightly so as to put the tendo achillis on the stretch. A gentle stroke on the back of the tendon leads to a momentary contraction of the calf muscles as evidenced by a sharp planter flexion of the foot.

E. ANKLE CLONUS :-

The patient's knee is slightly flexed and the leg is supported with one hand. While the other hand over the sole of the fore foot makes sudden dorsi flexion of the

foot. The foot will be set oscillating if slight pressure on the sole is maintained, this is pathognomonic of lesions of pyramidal system.

F. PLANTAR REFLEX (L₅-S₁)

The inner or the outer border of foot is scratched with a pin. Normally the great toe is flexed, but in the lesions of the pyramidal tract and in infants. (in whom the tract is not yet myelinated) the great toe will be extended. (Babinski's sign)

G. CREMASTRIC REFLEX (L₁)

This is elicited by scratching the skin at the upper and inner part of the thigh when the testes will be drawn upwards.

H. ABDOMINAL REFLEXES :

These are elicited by stroking the abdominal wall parallel to the costal margins and iliac crests and observing the movements the umbilicus which indicate contraction of the abdominal muscles. These reflexes are abolished in lesions of the pyramidal tract.

THE CORNEAL REFLEX :

Use a wisp of cotton. The patient looks to oneside. The examiner comes from the other side. Touches the cornea at its junction with the sclera. Look for blinking on the same side and on the opposite side.

DEEP TENDON REFLEXES

REFLEX	NERVE	MODE OF ELICITATION	RESPONSE
Biceps C 5-6	Musculo cutaneous	Blow upon the biceps tendon	Flexion of the elbow
Supinator C 5-6	Radial	Blow upon the tendon of brachioradialis at the distal	Flexion of the forearm with supination

		end of the radius	
Triceps C 7-8	Radial	Blow upon the triceps tendon	Extension of the arm
Finger flexion C 8	Median	Blow upon the quadriceps tendon	Slight Flexion of all fingers
Knee L 2-4	Femoral	Blow upon the quadriceps tendon	Extension of the knee
Ankle S 1-2	Sciatic	Blow upon the tendo - calcaneus	Plantar flexion of the ankle

GRADATION OF MUSCLE POWER

Grade	:	0	Complete Paralysis
Grade	:	1	Flicker of contraction
Grade	:	2	Contraction with gravity eliminated
Grade	:	3	Contraction against gravity alone
Grade	:	4	Contraction against gravity and some resistance
Grade	:	5	Contraction against powerful (normal power) resistance.

CO-ORDINATION OF THE LIMBS :-

IN UPPER LIMBS :

A) THE FINGER NOSE TEST :

1. Patient holds the arm outstretched and abducted to 90° at the shoulder.
2. He touches the tip of his nose with the tip of his index finger.
3. The finger is held on to the nose.

IN LOWER LIMBS :-

THE KNEE HEEL TEST :

1. One heel is held on the opposite knee.
2. The heel is slid accurately down the front of the shin to the ankle and back again.

In sensory ataxia, this in co-ordination worsens with the eyes closed. In cerebellar ataxia, there will be no difference. Note the smoothness of the movement, steadiness of the limbs and the ease with which the test is performed.

MATERIALS AND METHODS

SELECTION OF CASES :

The clinical study on "Pakkavaadham" was done by the author in the Post-Graduate Department of Sirappu maruthuvam at Government Siddha Medical College

Hospital, Palayamkottai from March-2005 To – March 2007. Accordingly Thirty patients out of both sexes and varying age groups were selected twenty patients in the P.G Department of sirappu maruthuvam under the supervision of Professor and Lecturer and treated in In-Patient ward for study. Another twenty five patients also treated with the trial drug in the Out-Patient ward.

All the cases were carefully and thoroughly examined at the time of admission. Besides an individual case sheet was maintained for each patient in the In-Patient ward. All the patients were advised to come to the Out-Patient ward for further follow-up.

EVALUATION OF CLINICAL PARAMETERS :

During admission the patients were subjected to careful history taking. The clinical symptoms,

1. Inability to use the one half of the body.
2. Muscle wasting in the affected side
3. Dystrophy due to disuse.
4. Heaviness of the limbs in the affected side.
5. Mental depression
6. Giddiness
7. Excess thirst
8. Dryness of lips and tongue
9. Recurrent cram press
10. Burning sensation of the eyes.
11. Tingling sensation over the affected area
12. Difficulty in speaking
13. Constipation were also taken as criteria for the selection of patients.

The history had been collected from the patients about.

1. Occupation
2. Diet habits
3. Personal habits

4. Family history
5. Socio-economic status
6. Physiological condition
7. Exposure to cold
8. Infective diseases,
9. Trauma
10. Hereditary Diseases
11. Metabolic disorders (Diabetes mellitus etc.,)

MODE OF DIAGNOSIS :

The diagnosis is made by the following siddha basic principles.

1. epyk;
2. gUtf;fhyk;
3. njfepiy
4. bghwpahy; mwpjy;
5. g[ydhhy; mwpjy;
6. tpdhjy;
7. Kf;Fw;w epiy
8. cly; jhJf;fs; epiy
9. vz;tif njh;t[fs;

And the diagnosis "Pakka Vaadham" was obtained which correlates with the modern entity "Hemiplegia" by the physical examination of the patient and with the some patient CT scan and MRI reports.

CLINICAL INVESTIGATIONS :

The following investigations were also done to confirm the diagnosis and to follow the progress of the patient.

1. BLOOD TESTS :

WBC - Total Count

Differential Count

Erythrocyte sedimentation Rate

Hemoglobin estimation

Blood sugar

Blood Urea

Lipid profile

Serum cholesterol

Bleeding time

Clotting time

2. URINE ANALYSIS :

Albumin

Sugar

Deposits

3. MOTION TEST :

Ova

Cyst

4. RADIOLOGICAL INVESTIGATION :

X-RAY Chest PA View

Computerized Tomography - Brain (Plain)

Computerized Tomography - Brain (Contrast)

Magnitude resonance imaging

Electro Encephalo Gram

Angiogram

ADMINISTRATION OF TRIAL DRUGS :

The patients were treated with the trial drugs,

1. Manosilai kattu chenduram 100mg with neem oil twice a day after meal internally and
2. Malkingini thylam was given for external application over the affected area.

To the some patients Murukkan viththu mathirai 1 in the early morning was given as purgative according to the condition of the body, one day previously before starting the treatment. When ever the patients complained of constipation Nilavaagai chooranam 5 mg at bed time with hot water was given at night.

Bio-Chemical analysis of the Trial drug was done in the Department of Bio-Chemistry at Government Siddha Medical College, Palayamkottai.

Pharmacological analysis of the trial drugs was done in the department of pharmacology, Government Siddha Medical College, Palayamkottai.

At the time of discharge, all the patients were advised to follow this Treatment and attend the out-patients department for the follow- up study.

CASE PROFORMA :

The observations made from the twenty patients with the signs and symptoms of "Pakka Vaadham" and the results, clinical improvements were properly recorded in the proforma. Exercises to the affected side of the upper limbs and lower limbs were also advised to all patients. When the symptoms were reduced the patients were advised to Sirappu Maruthuvam like yogaasanam, piranaayaanam, and thiyaanam according to their physical and mental conditions.

OBSERVATION AND RESULTS

1. Incidence of Pakkavaadham

Among the twenty patients of varied etiology who were admitted in the In-Patient ward for study the incidence is sixteen patients in males (80%) and four patients in females (20%)

In the Out-Patient ward, the incidence is 70% in males and 30% in females.

Table - 1

S.No	Sex	No. of Patients (In In-Patient ward)	Percentage
1	Male	16	80%
2	Female	4	20%

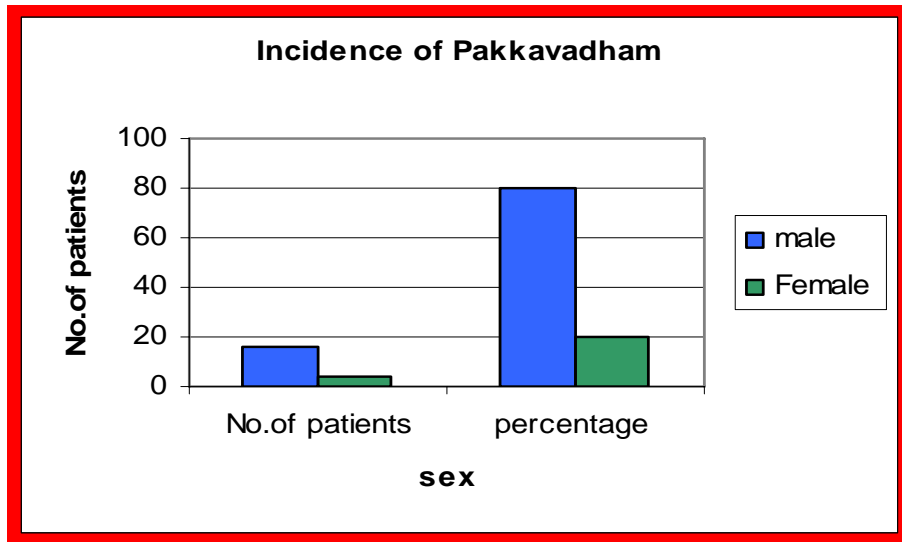
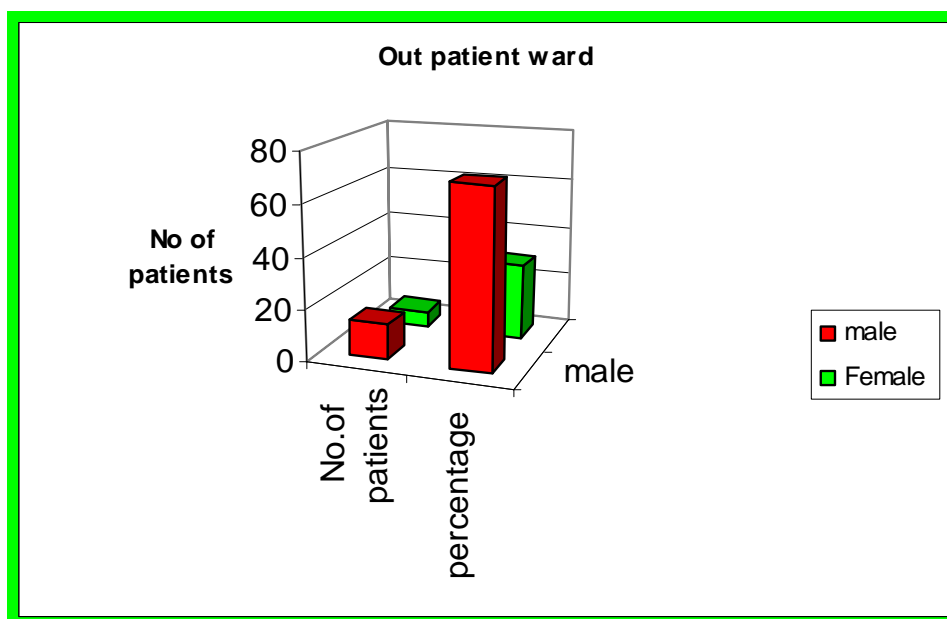


Table - 2

S.No	Sex	No. of Patients (In Out-Patient ward)	Percentage
1	Male	16	80%
2	Female	4	20%

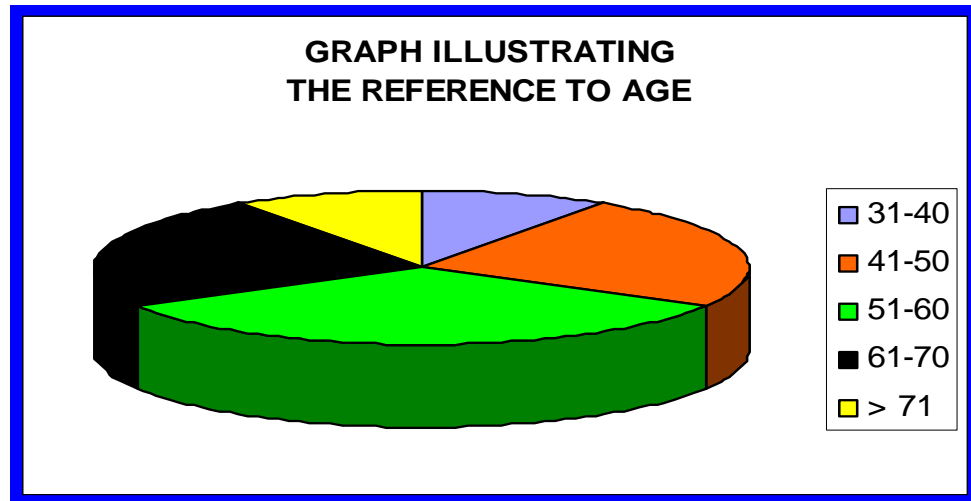


3. AGE INCIDENCE

Among the twenty patients the highest incidence was in the age group of 51-60 years (35%). One patient belonged to the age group of below 20 years (5%). Seven patients to the age group of 51-60 years (35%), five patients to the age group of 61-70 years (25%). Five patients to the age group of 61-70 years (25%) and two patients to the age group of 71 and above (10%).

Table - 3

S.No	Age (In Years)	No. of Patients	Percentage
1	Below 20	1	5%
2	21- 30	-	-
3	31- 40	2	10 %
4	41- 50	5	25 %
5	51- 60	7	35 %
6	61- 70	5	25 %
7	71 and above	2	10 %

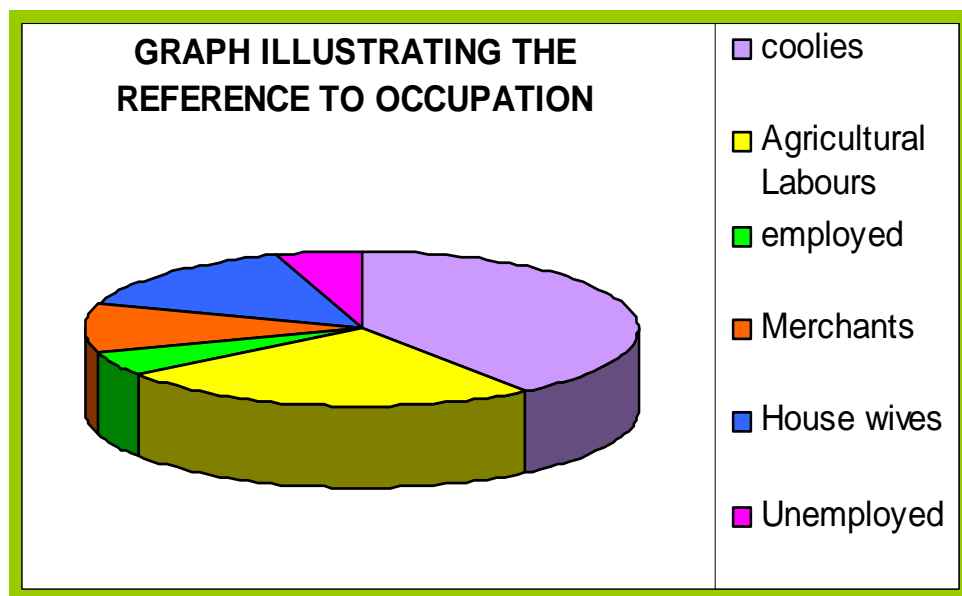


4. OCCUPATION

Eight male patients were coolies (40%), five agricultural labours (25%), one employed (5%), two merchants (10%), three house wife (15%) and one unemployed (5%) during incidence.

Table - 4

S.No	Occupation	No. of Patients	Percentage
1	Coolies	8	40%
2	Agricultural Labours	5	25%
3	Employed	1	5 %
4	Merchants	2	10 %
5	House wives	3	15 %
6	Unemployed	1	5 %

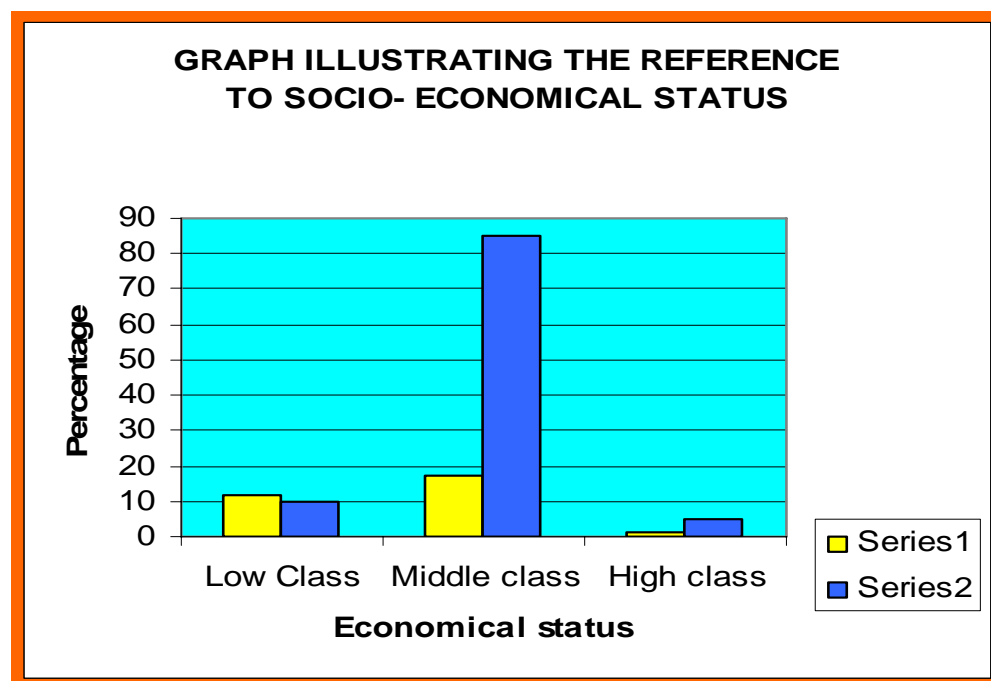


5. SOCIO - ECONOMICAL STATUS

The majority of the patients about seventeen belonged to economically middle class (85%), two patients belonged to low class (10%) and one patient belonged to the high class.

Table - 5

S.No	Economical Status	No. of Patients	Percentage
1	Low Class	2	10%
2	Middle Class	17	85%
3	High Class	1	5%

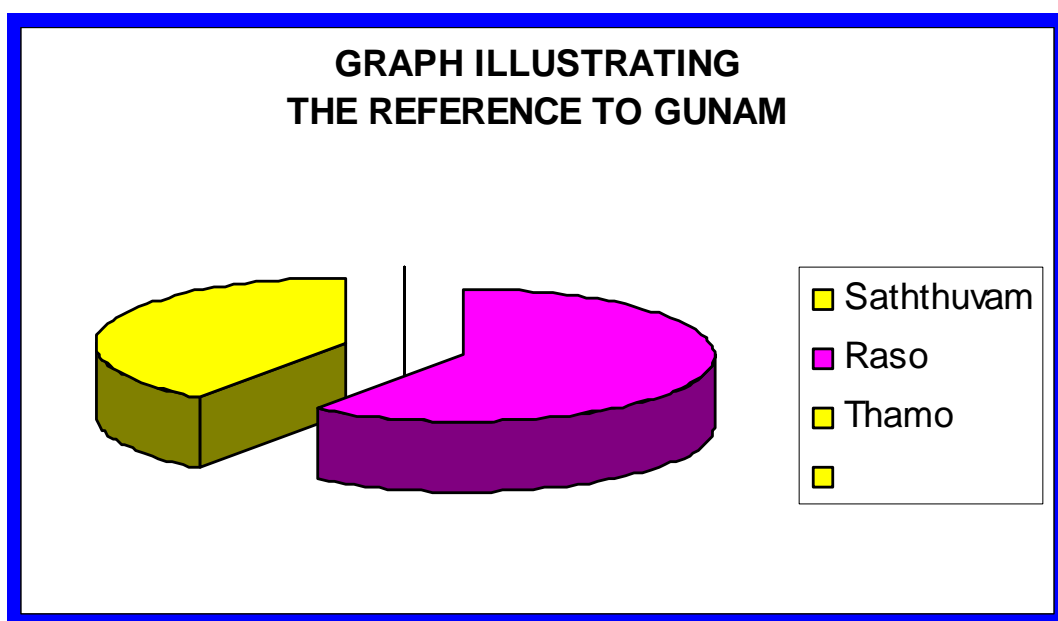


6. REFERENCE TO GUNAM

Twelve patients with Rajo gunam formed the highest incidence (60%) and remaining eight patients had Thamo gunam (40%).

Table - 6

S.No	Gunam	No. of Patients	Percentage
1	Saththuvam Gunam	-	-
2	Raso Gunam	12	60%
3	Thamo Gunam	8	40 %

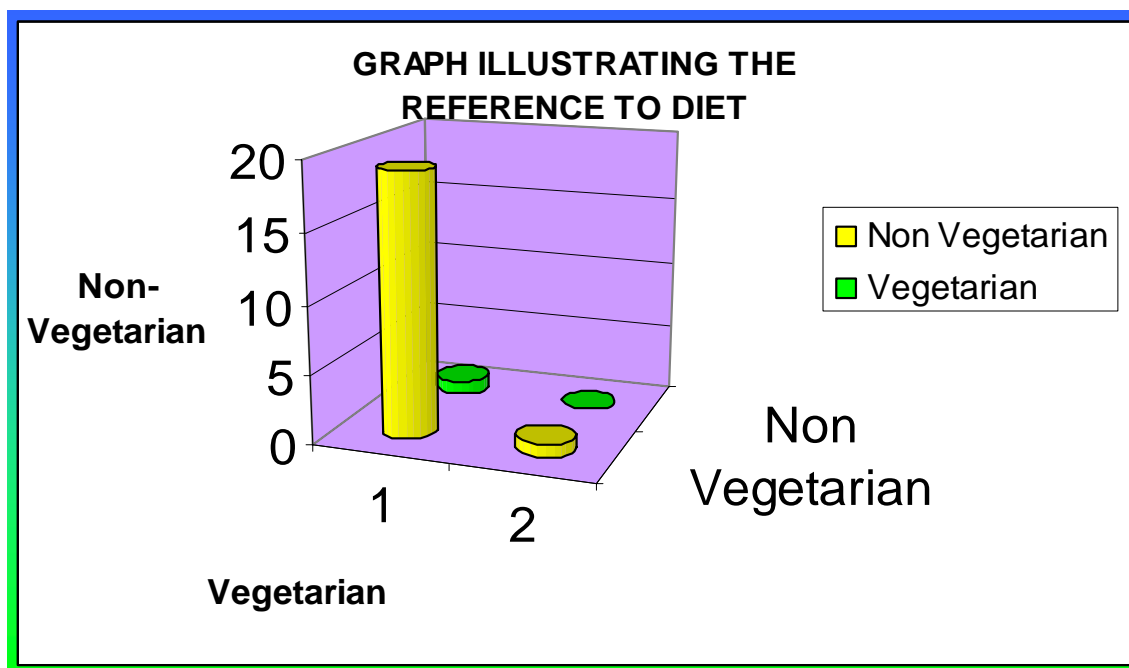


7. REFERENCE TO DIET

Among the twenty patients, Nineteen patients were Non vegetarian (95%) and one patient was Vegetarian (5%) .

Table - 7

S.No	Diet	No. of Patients	Percentage
1	Non Vegetarian	19	95%
2	Vegetarian	1	5%



8. PATHOLOGICAL HISTORY REFERENCE

All patients are having no related Pathological conditions in this disease (100%).

Table - 8

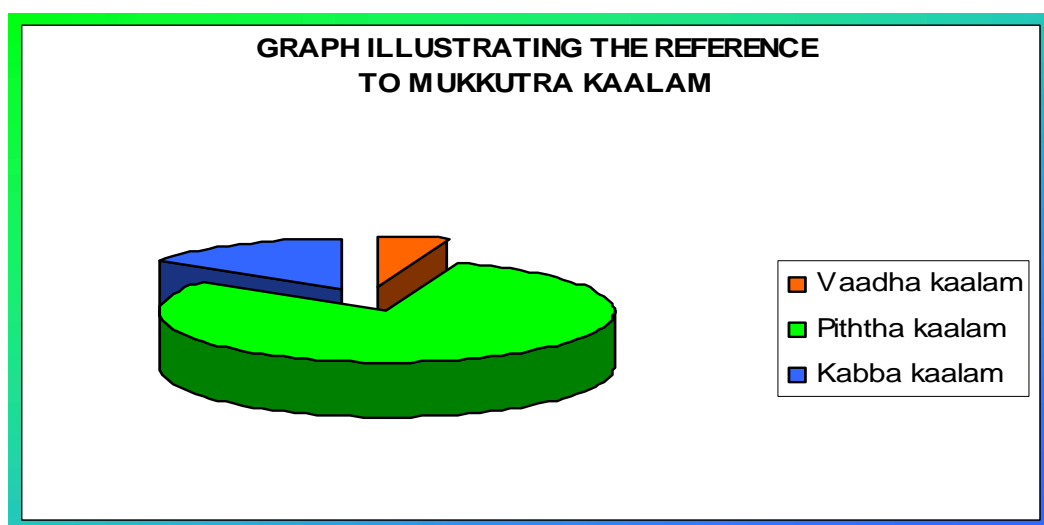
S.No	Pathological	No. of Patients	Percentage
1	Positive	0	-
2	Negative	20	100%

9. DISTRIBUTION ACCORDING TO MUKKUTRA KAALAM

Among twenty patients, one patient belonged to the Vaadha kaalam during 1-33 years (5%). Sixteen patients under study belonged to the piththa kaalam during 34-66 years (80%) and three patients belonged to the kabha kaalam during 67-100 years (15%) .

Table - 9

S.No	Kaalam (Age)	No. of Patients	Percentage
1	Vaadha Kaalam (1- 33 yr)	1	5%
2	Piththa Kaalam (34 - 66 yr)	16	80%
3	Kabha kaalam (67 - 100 yr)	3	15%

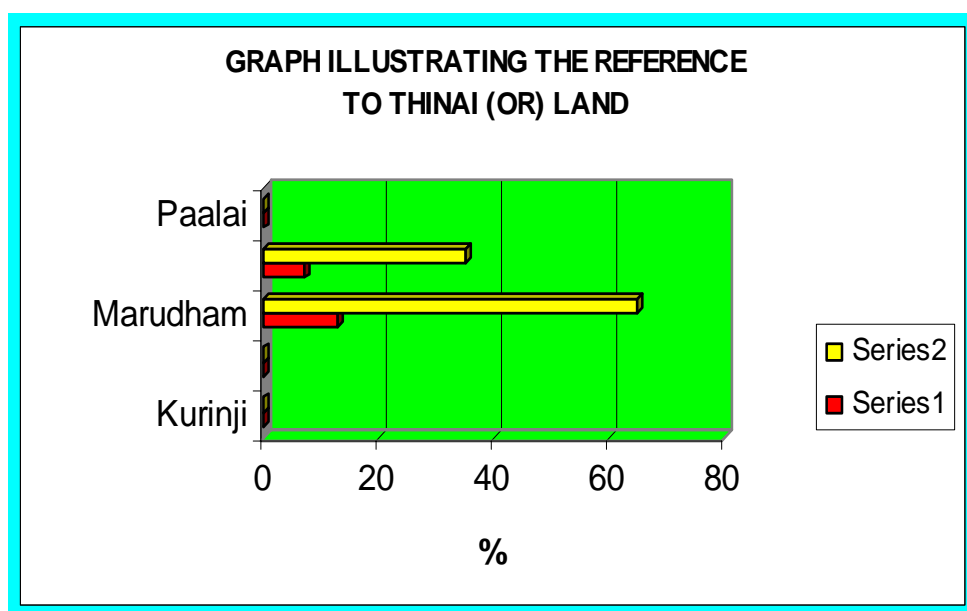


10. THINAI (OR) LAND INCIDENCE

Among the twenty patients, Thirteen patients hailed from Marudham (65%) and seven patients from Neidhal (35%) .

Table - 10

S.No	Thinai (or) Land	No. of Patients	Percentage
1	Kurinji	-	-
2	Mullai	-	-
3	Marudham	13	65%
4	Neidhal	7	35%
5	Paalai	-	-



SEASONAL (PARUVA KAALA) INCIDENCE

Out of Twenty patients, five patients were affected during kaar kaalam (25%), Two patients during Koothir Kaalam (10%), Two patients during Munpani kaalam (10%), six patients during Pinpani kaalam (30%), four patients during Elavenir Kaalam (20%) and one patient during Mudhuvenir kaalam (5%) .

Table - 11

S.No	Paruva kaalam (Seasons)	Month	No. of Patients	Percentage
1	Kaar kaalam	Avani, Purattasi 15th August to 14th October	5	25%
2	Koodhir kaalam	Ippasi, Kaarthigai 15th October to 14th December	2	10%
3	Munpani kaalam	Maargazhi, Thai 15th December to 14th February	2	10%
4	Pinpani kaalam	Maasi, Panguni 15th February to 14th April	6	30%
5	Elavenir kaalam	Chiththirai, Vaigaasi 15th April to 14th June	4	20%
6	Mudhuvenir kaalam	Aani, Aadi 15th June to 14th August	1	5%

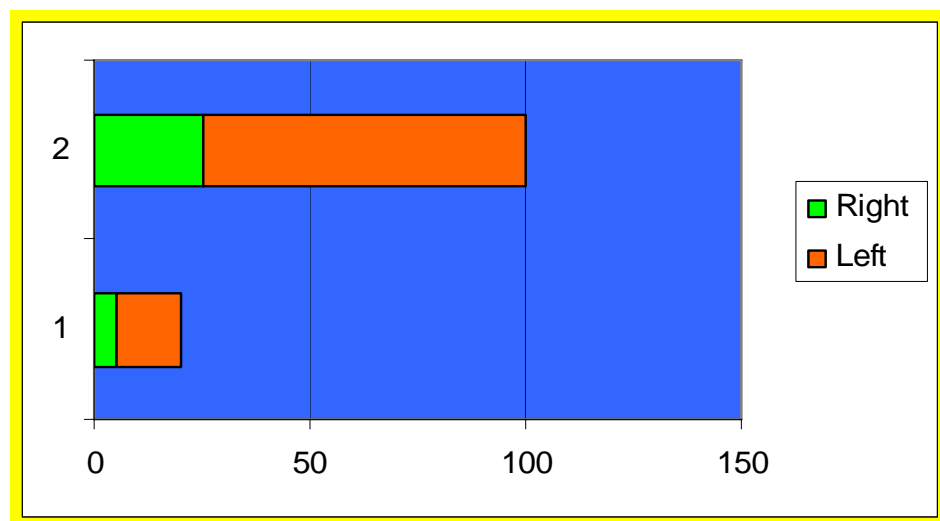
12. INCIDENCE OF PAKKA VAADHAM ACCORDING TO THE SIDE EXISTS

Among the twenty patients, the right side was affected in male six patients (30%) and left side was affected in male ten patients (50%).

Male

Table - 12 (1)

S.No	Affected side	No. of Patients	Percentage
1	Right	6	30%
2	Left	10	50%



Among the 20 patients four female patients
affected in right side only .

Table - 12 (2)

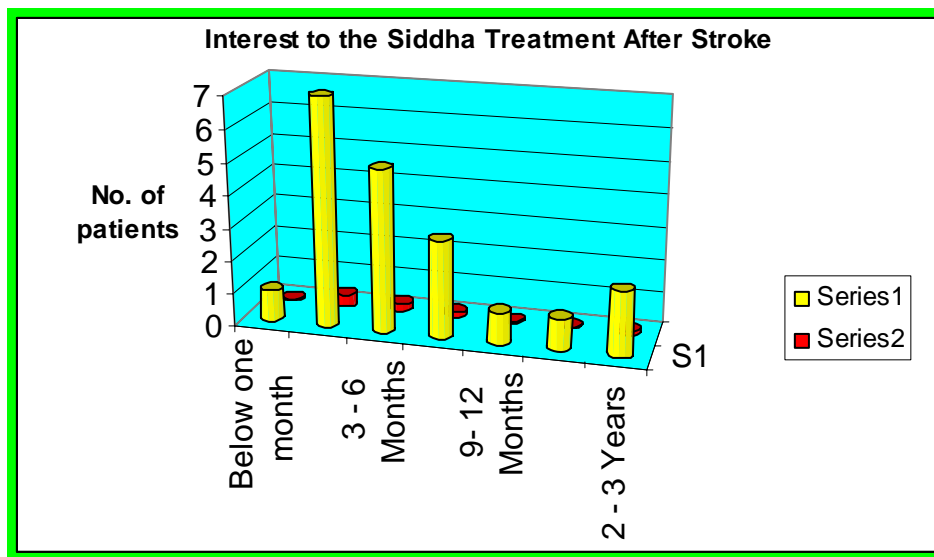
S.No	Affected side	No. of Patients	Percentage
1	Right	4	20%
2	Left	-	-

13. INTEREST TO THE SIDDHA TREATMENT AFTER STROKE

Among twenty patients, only one patient (5%) was admitted for siddha system of treatment immediately after stroke, seven patient's were admitted after 1-3 months (35%), five patients admitted after 3-6 months (25%), Three patients admitted after 6-9 months (15%), One patients admitted after 9-12 months (5%), one patient admitted after 1-2 years (5%) and two patients admitted after 2-3 years (10%), of stroke.

Table - 13

S.No	Duration after stroke	No. of Patients	Percentage
1	Below one month	1	5%
2	1 - 3 Months	7	35%
3	3 - 6 Months	5	25%
4	6 - 9 Months	3	15%
5	9- 12 Months	1	5%
6	1 - 2 Years	1	5%
7	2 - 3 Years	2	10%

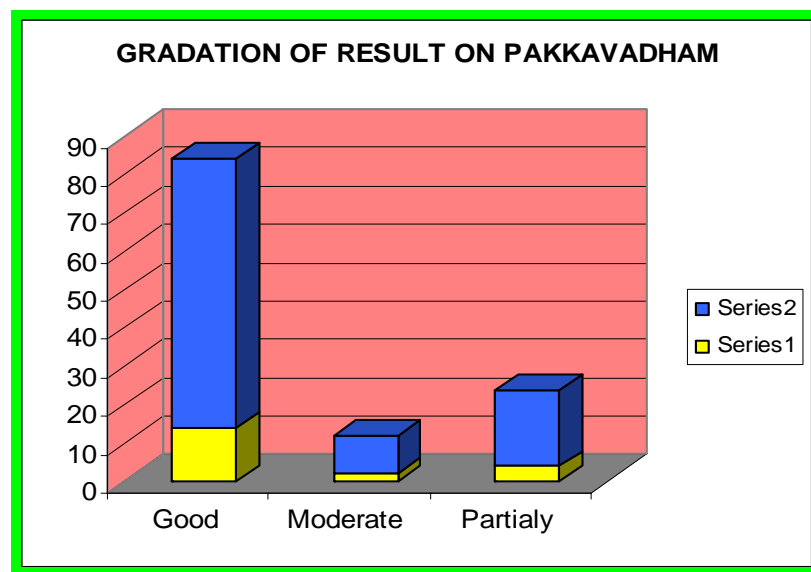


14. GRADATION OF RESULT ON PAKKA VAADHAM

According to the prognosis of the Pakkavaadham, among the twenty patients Good clinical result was seen in fourteen patients (70%), Moderate clinical result was seen in two patients (10%) and partialy clinical result was seen in four patient 's (20%).

Table - 14

S.No	Result	No. of Patients	Percentage
1	Good	14	70%
2	Moderate	2	10%
3	Partially	4	20%

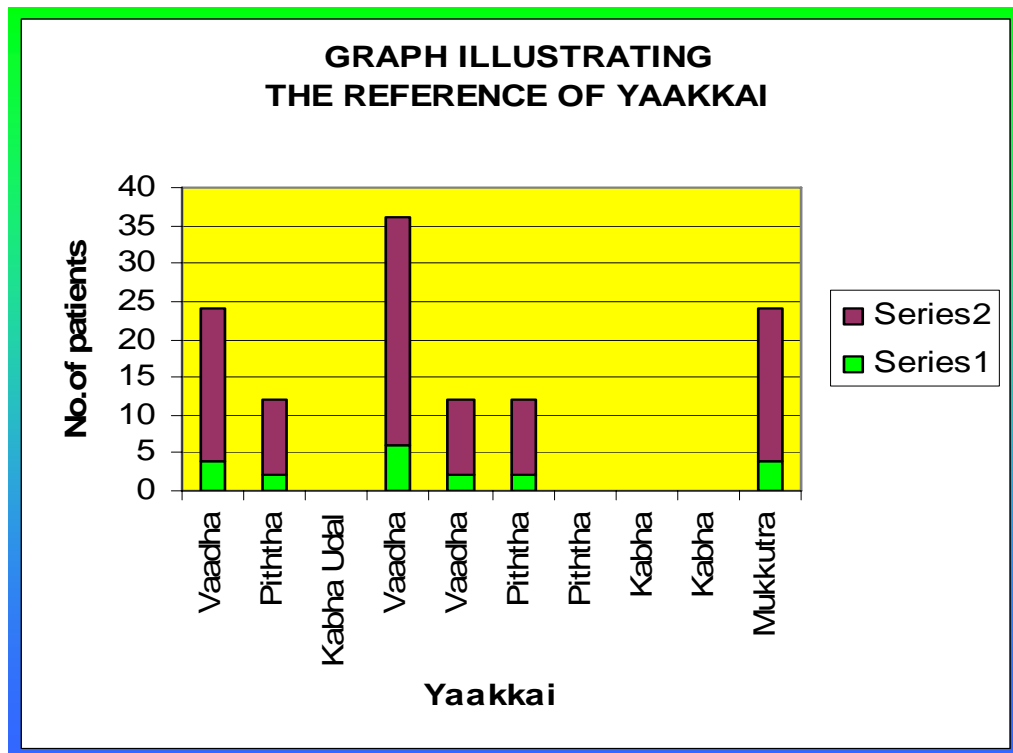


15. YAAKKAI REFERENCE

Among the twenty maximum category of kalappu (Thondha) Udal, Thus four partients had Vaadha udal (20%). Two patients belonged to Vaadha kabha udal (10%), two patients Piththa kabha udal (10%), six patient belong to vadha piththa udal (30%), two patients belonged to Piththa udal (10%) and four patients belong to mukkuttra udal (20%).

Table - 15

S.No	Yaakkai	No. of Patients	Percentage
1	Vaadha Udai	4	20%
2	Piththa Udai	2	10%
3	Kabha Udai	-	-
4	Vaadha Piththa Udai	6	30%
5	Vaadha Kabha Udai	2	10%
6	Piththa Vaadha Udai	2	10%
7	Piththa Kabha Udai	-	-
8	Kabha Vaadha Udai	-	-
9	Kabha Piththa Udai	-	-
10	Mukkuutra Udai	4	20%



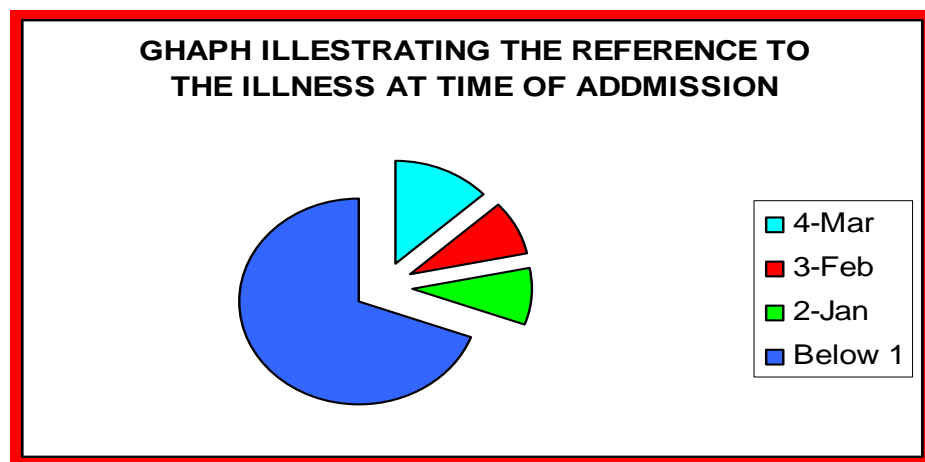
16. DURATION OF ILLNESS AT THE TIME OF ADMISSION

At the time of admission among the twenty patients, sixteen patients had been

suffered below 1 year (80%), two patients from 1 to 2 years (10%) and two patients from 2 to 3 years (10%) .

Table - 16

S.No	Duration of Illness (In years)	No. of Patients	Percentage
1	3-4	-	-
2	2-3	2	10%
3	1-2	2	10%
4	Below 1	16	80%

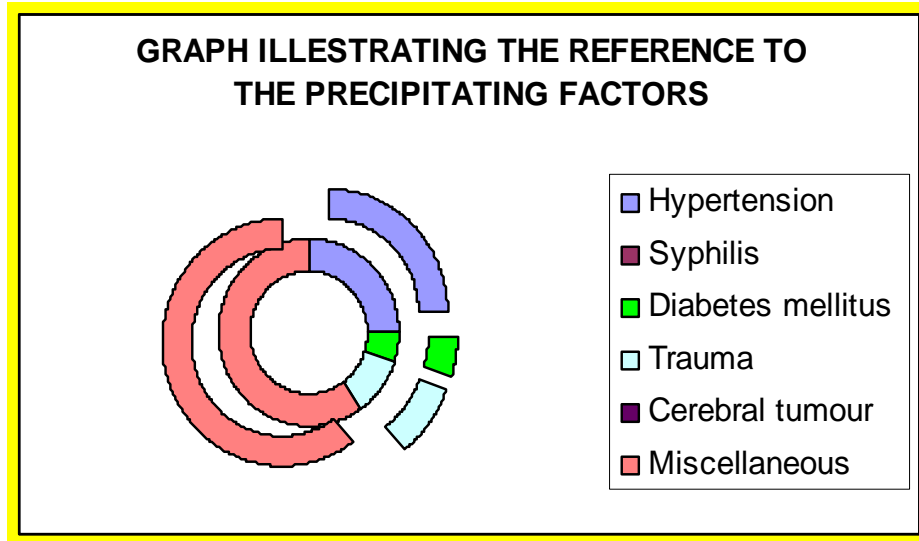


17. PRECIPITATING FACTORS

In the twenty patients, Hypertension was the precipitating factor in five patients (25%), one patient was both Hypertensive and Diabetic (5%) two patients were both Hypertension diabetic trauma and twelve patients having other complaints (60%).

Table - 17

S.No	Precipitating Factors	No. of Patients	Percentage
1	Hypertension	5	25%
2	Syphilis	-	-
3	Diabetes mellitus	1	5%
4	Trauma	2	10%
5	Cerebral tumour	-	-
6	Miscellaneous	12	60%

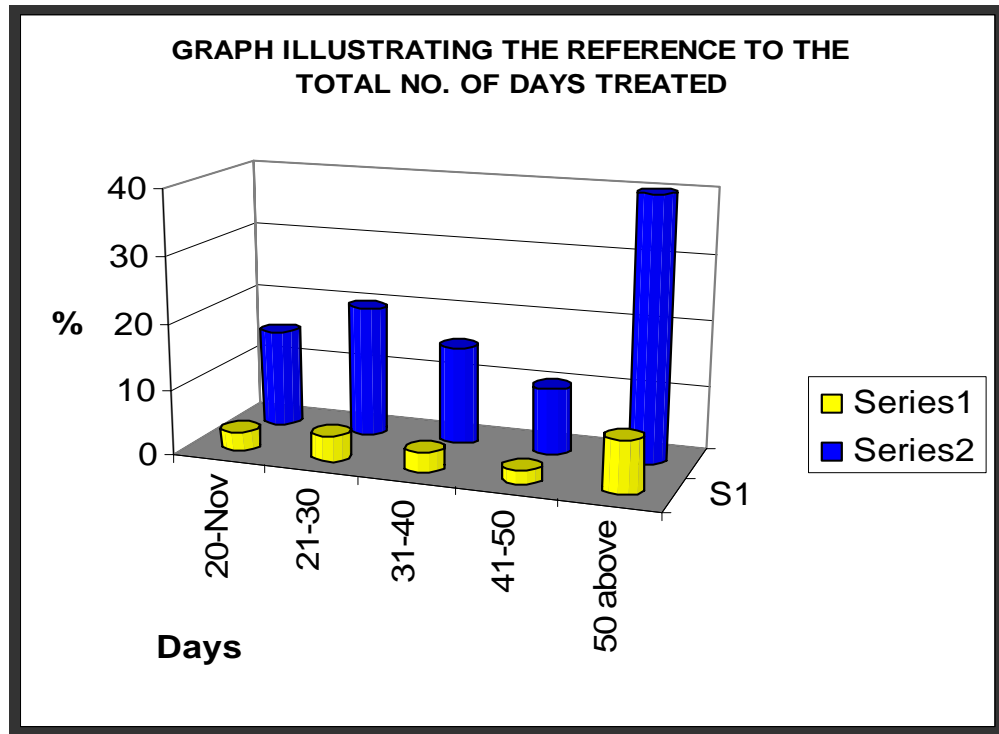


1. DISTRIBUTION ACCORDING TO THE TOTAL NO. OF DAYS TREATED

Among the Twenty patients, three patients for 11-20 days (15%), four patients for 21-30 days (20%), three patients for 31- 41 days (15%), two patients for 41-50 days and eight patients were treated above fifty days.

Table - 18

S.No	No. of Days treated	No. of Patients	Percentage
1	11 - 20	3	15%
2	21 - 30	4	20%
3	31 - 40	3	15%
4	41 - 50	2	10%
5	50 above	8	40%



19. CLINICAL PRESENTATION

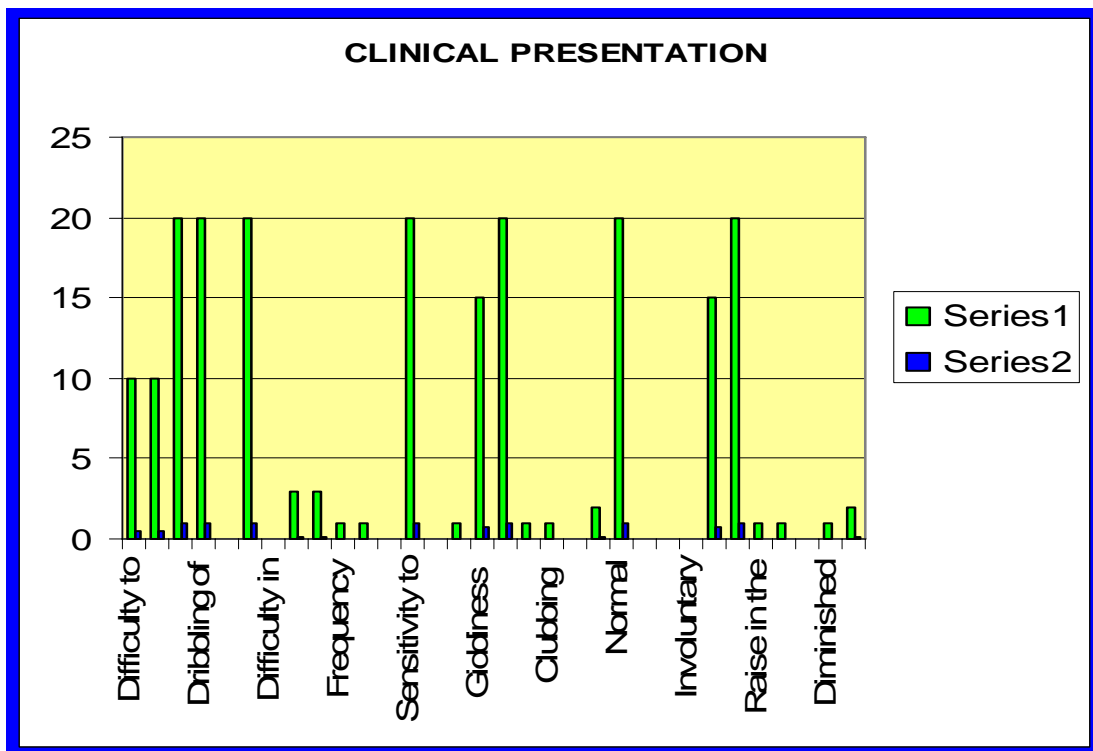
All the patients admitted in ward were carefully examined the signs and symptoms of all patients were noted. Among twenty patients the difficulty to use left upper limb and lower limb was noted in ten patients (50%), the difficulty to use right upper limb and lower limb was noted in ten patients (50%) the deviation of mouth was noted in twenty patients (100%), Drooling of saliva was noted in twenty patient (100%), difficulty in speaking was noted in all patients (100%), the breathless ness noted in three patients (15%) the excessive thirst noted in three patients (15%) ,frequency of micturition noted in one patient (5%), burning sensation all over the body noted in one patient (5%), sensitivity to pain in all patients (100%), loss of weight noted in one patient (5%), giddiness noted in fifteen patients (75%), epilepsy in one patient (5%), circumduction gait found in all patients (100%), clubbing seen in one patient (5%) pedal oedema noted in two patients (10%), normal higher intellectual function seen in all the twenty patients (100%), mental depression was noted in fifteen patients (75%), pain in the joints was complained in twenty patients (100%), raise in the temperature was noted in one patient (5%), loss of appetite seen in one patient (5%), cough noted in two patients (10%), diminished vision found in one patient (5%) and sleeplessness in two patient (10%).

CLINICAL PRESENTATION

Table - 19

S.No	Signs and symptoms	No. of Patients	Percentage
1	Difficulty to use Lt upper and lower limbs	10	50%
2	Difficulty to use Rt upper and lower limbs	10	50%
3	Deviation of mouth	20	100%
4	Drooling of saliva	20	100%
5	Difficulty to close the eyes	-	-
6	Difficulty in swallowing	-	-
7	Breathlessness	3	15%
8	Excessive thirst	3	15%
9	Frequency of micturition	1	5%
10	Burning sensation all over the body	1	5%
11	Head ache	-	-
12	Sensitivity to pain	20	100%
13	Past H/O similar episode	-	-
14	Loss of weight	1	5%
15	Giddiness	15	75%
16	Circumduction gait	20	100%
17	Epilepsy	1	5%
18	Clubbing	1	5%
19	Anaemia	-	-
20	Pedal oedema	2	10%
21	Normal higher intellectual functions	20	100%
22	Muscular wasting	-	-
23	Constipation	-	-
24	Involuntary movements	-	-

25	Mental depression	15	75%
26	Pain in the joints	20	100%
27	Raise in the temperature	1	5%
28	Loss of appetite	1	5%
29	Cough	2	10%
30	Tiredness	-	-
31	Diminished vision	1	5%
32	Sleeplessness	2	10%



20. CONDITIONS OF UYIR THAADHUKKAL

1. Vaadham :

"Distribution according to the disturbances of Ten Vaadham"

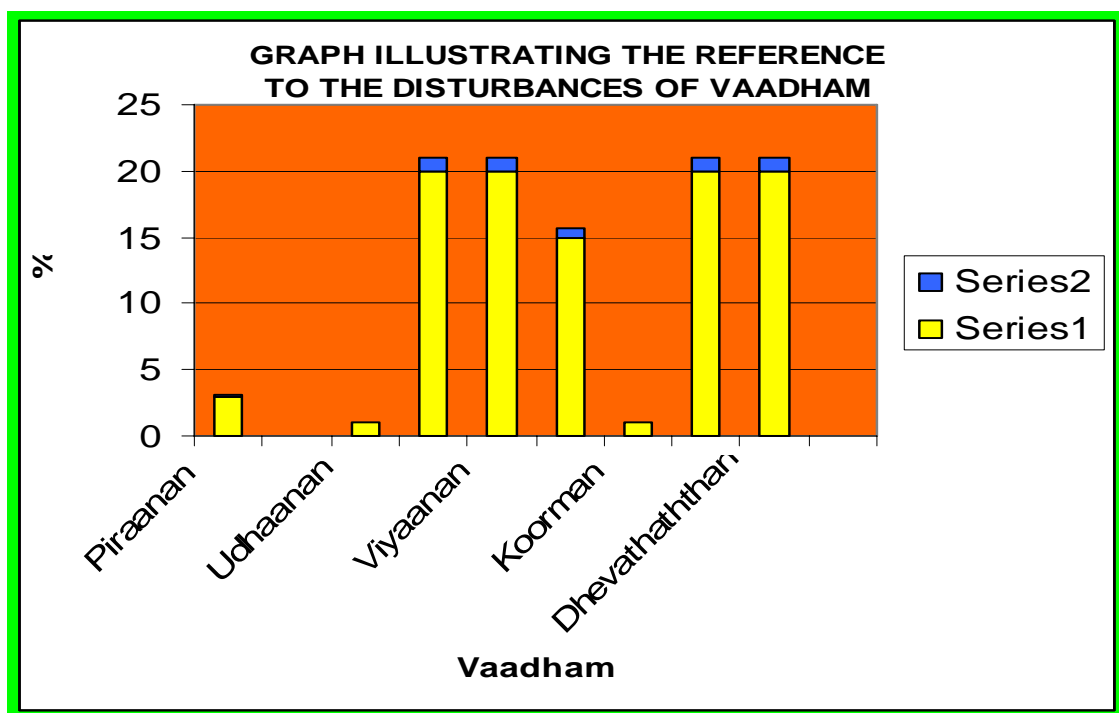
Among the twenty patients, three patients derangement piranan was indicated breathlessness (15%). Derangement of viyaanan was noted in all patients by the restricted movements of one side limbs and nutritional changes of the muscles (100%). Derangement of udhaanan was noted in one patient (5%), having loss of appetite and

cough. Derangement of samaanan was invariable in all the patients due to the derangement of other vaayus (100%). Naagan was noted to be deranged in fifteen patient who were mentally depressed (75%). Derangement of koorman was found in one patients who had diminished vision (5%). Kirugaran was found to be deranged in twenty patients as evidenced by Drooling of saliva (100%). Derangement of dhevathathan was found in all the patients as indicated by lethargy or disturbed sleep rhythm (100%).

CLINICAL PRESENTATION

Table - 20

S.No	Vaadham	No. of Patients	Percentage
1	Piraanan	3	15%
2	Abaanan	-	-
3	Udhaanan	1	5%
4	Samaanan	20	100%
5	Viyaanan	20	100%
6	Naagan	15	75%
7	Koorman	1	5%
8	Kirugaran	20	100%
9	Dhevathathan	20	100%
10	Thananjeyan	-	-



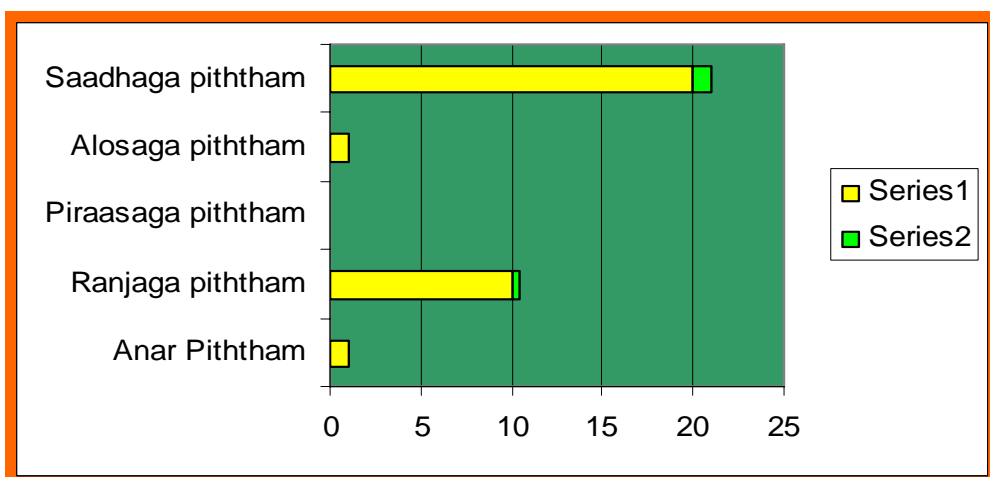
2. PITHTHAM :

Distribution according to the disturbances of five piththam :

The conditions of piththam with reference to its five types were studied in all patients. Anar piththam was noted to be deranged in one patients as evidenced loss of appetite (5%), Ranjaga piththam was found to be deranged in ten patients as evidenced by low Hb% in blood, pallor of tongue, nail and conjunctiva (50%), Piraasaga piththam was found be normal in all the patients. In one patient derangement of alosaga piththam was noted as evidenced by diminished vision (5%). Saadhaga piththam was found to be deranged in all patients evidenced by difficulty in attending their regular duties (100%)

Table - 20

S.No	Piththam	No. of Patients	Percentage
1	Anar Piththam	1	5%
2	Ranjaga piththam	10	50%
3	Piraasaga piththam	-	-
4	Alosaga piththam	1	5%
5	Saadhaga piththam	20	100%



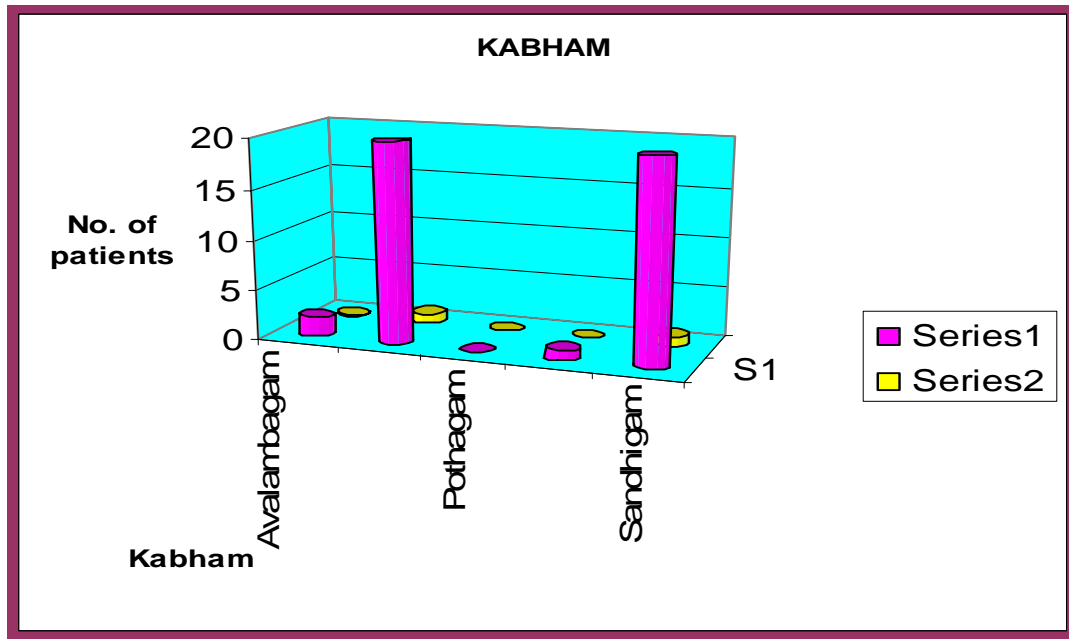
3. KABHAM :

Distribution according to the disturbances of five kabham

The conditions of kabham were studied with reference to five kabham. Deranged avalambagam was noted in two patients with symptoms of cough and expectoration (10%), Derangement of kiledhagam was noted in twenty patients with symptoms of Drolling of saliva (100%), Pothagam was found to be normal in all twenty patients Derangement of tharpagam was noted in one patient who had burning sensation of eyes and all over the body. Sandhigam was found to be deranged in twenty patients with knee pain (100%).

Table - 20

S.No	Kabham	No. of Patients	Percentage
1	Avalambagam	2	10%
2	Kiledhagam	20	100%
3	Pothagam	-	-
4	Tharpagam	1	5%
5	Sandhigam	20	100%

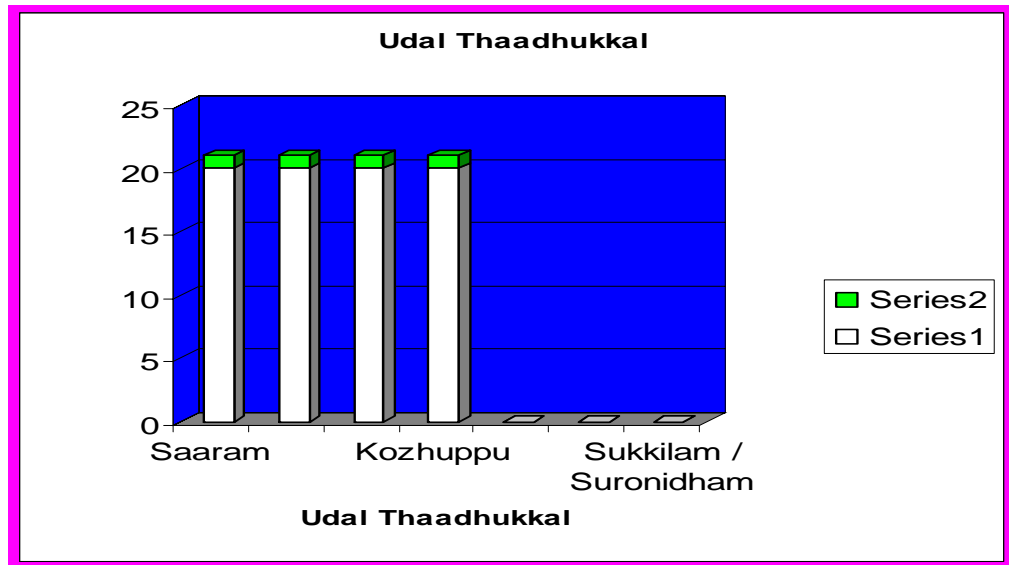


17.CONDITIONS OF UDAL THAADUKKAL

In all twenty patients, saaram was affected as evidenced by tiredness, lethargic and mentally depressed (100%). Senneer was affected in all the patients as evidence by increased ESR and decreased haemoglobin (100%). Oon was affected in all the patients as evidenced by muscle weakness (100%). Kozhuppu was affected in all the patients as evidenced by the difficulty of the half of the body movements. Sukkilam / Suronidham was normal in all twenty patients.

Table - 21

S.No	Udal Thaadhukkal	No. of Patients	Percentage
1	Saaram	20	100%
2	Senneer	20	100%
3	Oon	20	100%
4	Kozhuppu	20	100%
5	Enbu	-	-
6	Moolai	-	-
7	Sukkilam / Suronidham	-	-

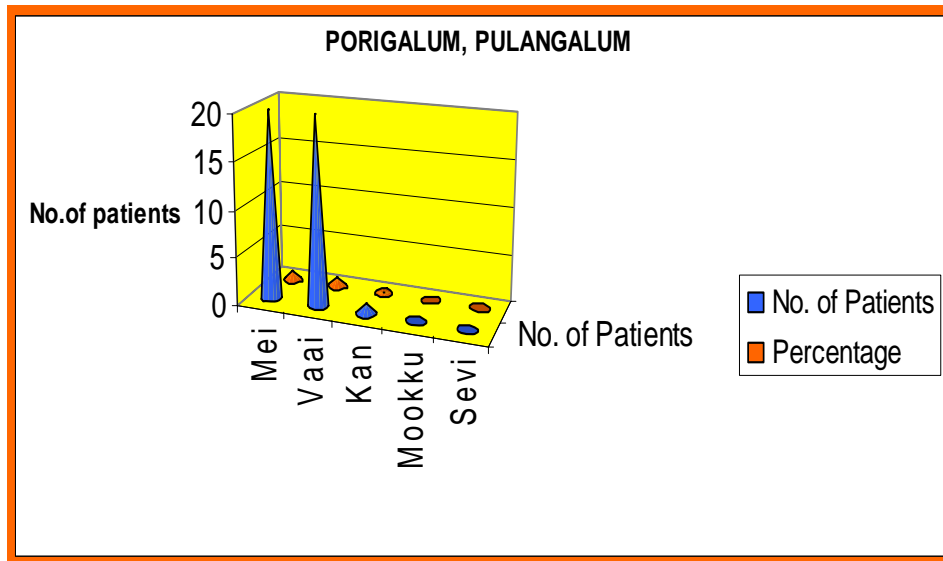


22. PORIGALUM, PULANGALUM

Mei and vaai was affected in all patients. kan was affected in one patients as evidenced by the diminished vision 5%, Mookku and sevi were found to be normal in all patients.

Table - 22

S.No	Porigalum, pulangalum	No. of Patients	Percentage
1	Mei	20	100%
2	Vaai	20	100%
3	Kan	1	5%
4	Mookku	-	-
5	Sevi	-	-



23. ENVAGAI THERVUGAL

1. Naa was Coated in fourteen patients 70% and the sense of taste was found to be normal
2. Niram was found normal in all patients
3. Mozhi was affected in all the patients as evidenced by difficulty in speaking (100%)
4. Vizhi was affected in one patient as evidenced by the presence of diminished vision (5%)
5. Sparisam was affected in all the patients as evidenced by muscle weakness (100%)
6. At the time of admission all patients of stools are found to be normal.
7. In neerkuri, edai of the siruneer (mooththiram) was affected in fifteen patients by the evidence of puscells in mooththiram (75%)
8. The enjal was affected in two patients evidence of frequent micturition (10%)

In neikuri the oil drop in urine.

 - a) Lengthens like snake in one patients - vaadhaneer 5%
 - b) Spreads like ring in four patients - piththaneer 20%
 - c) Appearing like pearl in fifteen patients - kabhaneer 75%

The niram, manam and nurai were found to be normal in all the patients.

Table - 23

S.No	Appearance of the oil drop	No. of Patients	Percentage
1	Lengthens like snake	1	5%
2	Spreading like ring	4	20%
3	Appearing like pearl	15	75%

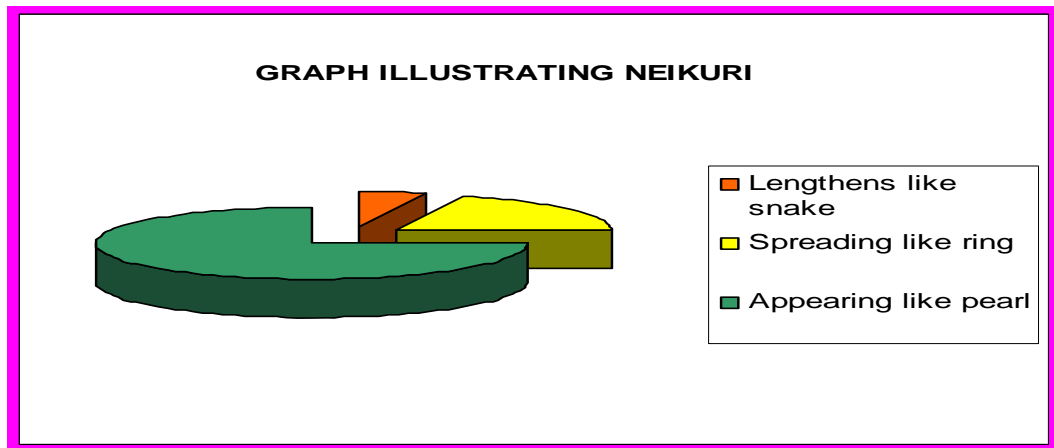
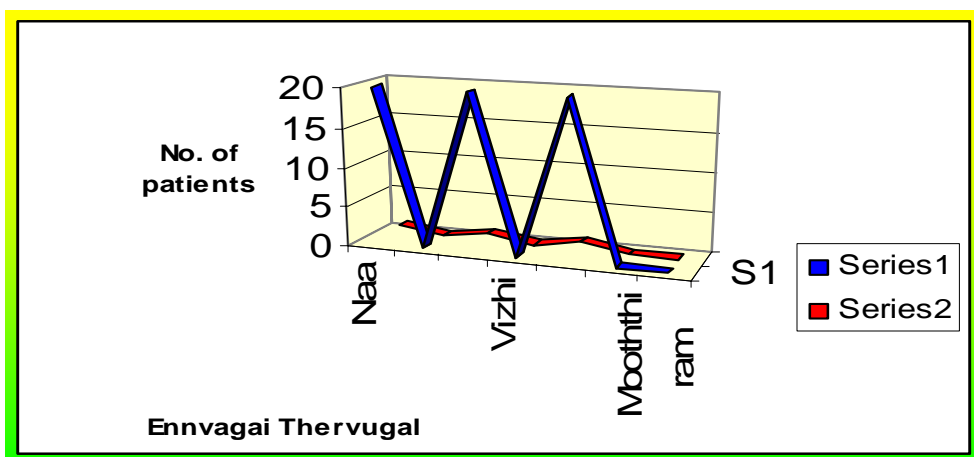
**GRAPH ILLUSTRATING THE REFERENCE TO ENN VAGAI THERVUGAL**

Table - 24

S.No	Enn vagai thervugal	No. of Patients	Percentage
1	Naa	20	100%
2	Niram	-	-
3	Mozhi	20	100%
4	Vizhi	-	-
5	Naadi	20	100%
6	Malam	-	-
7	Mooththiram	-	-
8	Sparisam	20	100%



24. NAADI NADAI

Naadi was affected in all twenty patients as evidenced by vaadham in fifteen patients (75%), vaadha pitham in three patients (15%), piththa vaadham in one patient (5%) and piththa kabham in one patient (5%).

Table – 24

S.No	Appearance of the oil drop	No. of Patients	Percentage
1	Vaadham	15	75%
2	Piththam	-	-
3	Kabham	-	-
4	Vaadhapiththam	3	15%
5	Vaadha kabham	-	-
6	Piththa Vaadham	1	5%
7	Piththa Kabham	1	5%
8	Kabha Vaadham	-	-
9	Kabha Piththam	-	-

OBSERVATION OF CLINICAL LABORATORY INVESTIGATIONS

At the time of admission routine laboratory investigations like Blood test, (WBC, Total Count, Differential count, Erythrocyte sedimentation Rate, haemoglobin level, sugar, urea, bleeding time, clotting time & Prothrombin test) urine analysis were done properly.

HAEMATOLOGICAL STUDIES

1. OBSERVATION OF HAEMOGLOBIN CONTENT :

The haemoglobin level (Hb%) was increased in almost all the patients. In ten patients (50%) the Hb% was ranged from 60-70%. In nine patients (45%) the Hb% was ranged from 71-80% and one patient (5%) the Hb% ranged from 81-90%.

Table - 25

S.No	Haemoglobin (in %)	No. of Patients	Percentage
1	60-70	10	50%
2	71-80	9	45%
3	81-90	1	5%
4	Above 91	-	-

2. LEUCOCYTES TOTAL COUNT

Total WBC count was above 8000/ cumm in all the patients. In Nineteen patients it was ranged from 8000 to 10000/ cumm and in one patient it was ranged from 10000 to 11000 / cumm.

Table - 26

S.No	WBC Total count range (cumm)	No. of Patients	Percentage
1	Below 8000	-	-
2	8000 to 10000	19	95%
3	10000 to 12000	1	5%

2. WBC - DIFFERENTIAL COUNT

Polymorphs and lymphocytes counts are normal in all twenty patients. Eosinophil count was very high in two patients (10%) ranged above 9.

Table - 27

S.No	Polymorphs count (%)	No. of Patients	Percentage
1	Below 60	12	60%
2	61-70	7	35%
3	71-80	1	5%
4	81and above	-	-

Table - 28

S.No	Lymphocytes count (%)	No. of Patients	Percentage
1	Below 25	2	10%
2	25-30	6	30%
3	31-35	1	5%
4	36-40	5	25%
5	41-45	6	30%

Table - 29

S.No	Eosinophil count (%)	No. of Patients	Percentage
1	1-3	6	30%
2	4-6	11	55%
3	7-9	1	5%
4	Above 9	2	10%

4 ERYTHROCYTE SEDIMENTATION RATE

Among the twenty patients the ESR was normal in five patients (25%) and it was showing to be increasing fifteen patients upto 95mm / hr.

Table - 30

ERYTHROCYTE SEDIMENTATION RATE

S.No	ESR mm/hr	No. of Patients	Percentage
1	1-5	5	25%
2	6-10	7	35%
3	11-15	3	15%
4	16-20	1	5%
5	21-25	-	-
6	26-30	1	5%
7	31-35	2	10%
8	36-40	-	-
9	41-50	1	5%
10	51-100	-	-
11	101-150	-	-

5. OBSERVATION OF BLOOD SUGAR

The random blood sugar was observed in all twenty patients it seemed to be below normal in seventeen patients (85%) and it increased in three patients (15%).

OBSERVATION OF BLOOD SUGAR

Table - 30

S.No	Blood sugar (mgm %)	No. of Patients	Percentage
1	Range below 120	17	85%
2	Range above 120	3	15%

6 OBSERVATION OF BLOOD UREA

The blood urea was observed in all twenty patients it seemed to be normal in all patients (100%).

6. OBSERVATION OF BLOOD UREA

Table - 31

S.No	Blood Urea (mgm %)	No. of Patients	Percentage
1	Range below 40 mgm	20	100%
2	Range above 40 mgm	-	-

7. OBSERVATION OF SERUM CHOLESTEROL

The serum cholesterol was observed in all twenty patients it seemed to be normal in ten patients (50%), it slightly increased in eight patients (40%) and it increased in two patients (10%).

OBSERVATION OF SERUM CHOLESTEROL

Table – 32

S.No	Serum cholesterol (mgm%)	No. of Patients	Percentage
1	100-160	10	50%
2	161-200	8	40%
3	Above 200	2	10%

OBSERVATION OF LIPID PROFILE

Table – 32 (a)

S.No	Lipid Profile	No. of Patients	Percentage
1	HDL	20	100 %
2	Triglycerides	18	90 %
3	LDL	15	75 %
4	VLDL	10	50 %
5	LDL / HDL	20	100 %
6	Total HDL	20	100 %

8. URINE ANALYSIS

For the analysis of urine in twenty patients, albumin was absent in all patients, sugar present in one patient (5%), pus cells present in eight patients (40%) and NAD in eleven patients (55%).

Table – 33

S.No	Urine Analysis	No. of Patients	Percentage
1	Albumin	-	-
2	Sugar	1	5%
3	Pus cells	8	40%
4	NAD	11	55%

9. MOTION ANALYSIS

No ova and cyst were found to all the twenty patients in motion analysis.

METHODS OF DIAGNOSIS

The diagnosis of Pakkavaadham in all twenty patients under study were carried out by clinical laboratory and radiological examinations and other facilities available in the college and hospital both siddha and modern methodologies.

The diagnosis also supported by the investigations carried out by the patients and also by the available reports to the patients.

TREATMENT AND RESULT

All the twenty patients were treated with the following internal and external medicines.

1. Manosilai kattu chenduram 100-200mg was given twice daily after meal with nimb oil
2. Malkinkini Thylam was given for external application over the affected region. Thokkanam (Physiotherapy) was given after maintaining the blood pressure and temperature of the patient normal.

some patients were treated with kalba medicines like yogasanam, piranayanam, Thiyanam and Thokkanam, Varmam and above medicines, they got quick and good relief than others.

The patients were treated in our hospital for 22 to 117 days. The result and prognosis were assessed on the basis of the subjective and objective feelings of difficulty in using the limbs, Drolling of the saliva, difficulty in speech, symptoms of hypertension, symptoms of diabetes mellitus and getting a sense of well being.

The day to day checkup of the patient proved that the treatment with the above therapy should be remarkable relief of difficulty in using one half of the body, speaking, and increase in the range of movement of the limbs. Satisfactory improvement was reported by the patients with in ten days of commencement of the treatment and the prognosis was better and encouraging with remarkable improvement in the course of treatment.

The result of the treatment were categorized. in four stages of relief in two grades of severity as shown in the table.

Form the table it is observed that

1. In Group A, fourteen patients had good relief (70%), two patients had moderate relief (10%) and four patients had Partially relief (20%).
2. In Group B, Six patients had good relief (30%) and only one patient had moderate relief (5%).

Group	Category	Good Relief NOP	Moderate relief NOP	Partially relief NOP	No Relief NOP
A	Only Hypertensive	5	-	-	-
B	Both Hypertensive & Diabetic	1	-	-	-

Note : NOP Number of Patients

ANALYSIS OF DRUGS

1. Bio - Chemical Analysis :

The biochemical analysis of Manosilai kattu chenduram was getting form the department of Biochemistry, Govt. Siddha Medical College, Palayamkottai.

2. Pharmacological analysis :

The Pharmacological analysis done in the Department of Pharmacology, Govt. Siddha Medical College, Palayamkottai, reveals that the drug Manosilai kattu chenduram has Moderate anti Inflammatory action.

The external medicine, Malkingini Thylam has mild anti - inflammatory effect in acute conditions.

The Pharmacological analysis of Manosilai kattu chenduram in different forms shows the mild anti - coagulant activity.

CLINICAL LABORATORY INVESTIGATIONS

DISCUSSION

"Pakka vaadham" which can be more or less correlated with "Hemiplegia" on par with modern medicine is one of the vaadha disease affecting the one half of the body and interfering with the functions of upper and lower limbs of one side and may associate with cranial nerves or not. The only literary evidence of this disease is found in the classification of Vaadha diseases in Yoogi Vaidhdhiya Sindhamani Perunool - 800 which gives the etiology and the clinical features also.

This dissertation work includes a literary collection of views both siddha and modern aspects of this disease. For the clinical study 20 patients were diagnosed clinically in the out patient department as "Pakkavaadham" as per the symptamatology and the Envagai thervugal and other siddha methods of diagnosis were selected and admitted In patient ward.

On the day of admission routine lab investigations (Blood, and Urine tests), radiological investigations, general and systemic examinations, Neerkuri and Neikuri were done in all 20 patients in both siddha and modern aspects. An individual case sheet was prepared and maintained to all the patients.

On early morning the next day of admission Murukkan viththu Pill 1 was given as the initial treatment of vaadha diseases for neutralizing the vitiated vaadham to some patients.

The internal medicine Manosilaikattu chenduram 100-200mg twice a day after meals with nimb oil and the external medicine, Malkingini thylam for the external application on the affected with Thokkanam and varmam were given to all patients regularly according to the blood pressure and temperature. All the patients were advised to follow the paththiyam and some patients were advised to yogaasanam, piraanaayaamam and thiyaanam as supportive therapies.

Another 20 patients were also treated with the trial drugs in the Out patient department.

- A. According to siddha literatures common causes given by various authors were lifting or carrying heavy loads, exposure to chillness, excessive intake of fruits and tubers, drinking raw rain water, excessive intake bitter, astringent and pungent tastes and getting angry. Regarding the etiology of hemiplegia in modern medicine trauma, hypertension, brain tumours and infections. From the etiology of pakkavaadham given by siddha and modern literatures the exaggerated vaadham affects the arteries by narrowing them and affects the nerves causes pakkavaadham.
- B. Pre disposing, factors like exposure to cold, occupation, physical stress, trauma, age factor, hypertension, diabetes mellitus, brain tumour infectious diseases and epilepsy.

1. INCIDENCE OF PAKKAVAADHAM

Among the 20 patients of varied aetiology who were admitted in the In-Patient ward for study the incidence is sixteen patients in males (80%) and four patients in females (20%).

In the Out-Patient ward, the incidence is 70% in males and 30% in females.

2. AGE INCIDENCE

Among the 20 patients the highest incidence was in the age group of 51-60 years (35%). Two patients belonged to the age group of 31-40 years (10%). Five patients to the age group of 41-50 years (25%) seven patients to the age group of 51-60 years (35%) and six patients to the age group of 61-70 years (30%) .

3. OCCUPATION

Six male patients were coolies (30%), Four agricultural Farmer (20%), two metal workers (10%), three merchants (15%), six house wives (30%) and one was employed (5%) during incidence.

4. SOCIO - ECONOMICAL STATUS

The majority of the patients about fifteen belonged to economically middle families (75%) , three patients belonged to high class (15%) and two (10%) patient

belonged to the poor .

5. REFERENCE TO GUNAM

Five patients with Rajo gunam formed the highest incidence (25%) and remaining fifteen patients had Thamo gunam (75%).

6. REFERENCE TO DIET

Among the twenty patients, eighteen patients were Non-Vegetarian (90%) and two patients were Vegetarians (10%) .

7. FAMILY HISTORY REFERENCE

Out of twenty patients, two patients were having the positive family history (10%) and remaining eighteen patients were having negative family history (90%).

8. DISTRIBUTION ACCORDING TO MUKKUTRA KAALAM

Among twenty patients , two belonged to Vaadha kaalam during 1-33 years. fifteen patients under study belonged to the Piththa Kaalam during 34-66 years (75%) and three patients belonged to the kabha kaalam during 67-100 years (15%).

9. THINAI (OR) LAND INCIDENCE

Among the twenty patients, fifteen patients hailed from Marudham (75%) , one patients from Neidhal (5%), one patient from kurinchi(5%) and three patient(15%) from mullai.

10. SEASONAL (PARUVA KAALA) INCIDENCE

Out of Twenty patients, one patient were affected during kaar kaalam (5%), six patients during koothir kaalam (30%), Ten patients during Munpani kaalam (50%). One patient during pinpani kaalam (5%) one patient during Elavenir kaalam (5%) and one patient during Mudhuvenir kaalam (5%) .

11. INCIDENCE OF PAKKA VAADHAM ACCORDING TO THE SIDE EXISTS

Among the twenty patients, the right side was affected in eleven patients (55%) and left side was affected in nine patients (45%).

12. INTEREST TO THE TREATMENT AFTER STROKE

Among twenty patients, two was admitted for siddha system of treatment immediately after stroke, twelve patients were admitted after 1-3 months (60%), two patients admitted after 4-6 months (10%), Two patients admitted after 1-2 years (10%), two patients admitted after 2-3 years (10%) of stroke.

13. GRADATION OF RESULT ON PAKKAVAADHAM

According to the prognosis of the Pakkavaadham, among the twenty patients, Good clinical result was seen in five patients (25%) Moderate clinical result was seen in thirteen patients (65%) and partial improvement in patients (10%).

14. YAAKKAI REFERENCE

According to the 20 patients, Five patients had vatha Udal (25%), two patients belonged to Pitha udal (10%) thirteen patients had Thondha udal (65%) .

15. DURATION OF ILLNESS AT THE TIME OF ADMISSION

At the time of admission among the twenty patients, sixteen patients had been suffered below 1 year (80%), 2 patients from 1 to 2 years (10%), 2 patients from 2 to 3 years (10%) .

16. PRECIPITATING FACTORS

In the twenty patients, Hypertension was the precipitating factor in seventeen patients (85%), one patient had both Hypertension and Diabetes (5%) and two patients was diabetic (10%).

17. DISTRIBUTION ACCORDING TO THE TOTAL NO. OF DAYS TREATED

Among the Twenty patients, four patients were treated for 31 to 40 days (20%) 3 patients for 40-30 days (15%) thirteen patients for above 50 days (65%) .

18. CLINICAL PRESENTATION

All the patients admitted in the ward were carefully examined. The signs and symptoms of all patients were noted. Among twenty patients the difficulty to use left upper limb and lower limb was noted in nine patients (45%), the difficulty to use right

upper limb and lower limb was noted in eleven patients (55%), the deviation of mouth was noted in twenty patients (100%), Drooling of saliva was noted in eleven patients (55%), difficulty in speaking was noted in all patients (100%), difficulty in swallowing was noted in one patient (5%), The breathlessness was noted in three patients (15%), the excessive thirst was noted in one patient (5%), frequency of micturition noted in three patients (15%), burning sensation all over the body was noted in fourteen patients (70%), past history of similar episode noted in two patient (10%), loss of weight noted in one patients (5%), giddiness noted in fourteen patients (70%), circumduction gait found in all patients (100%), clubbing had seen in two patients (10%), pedal oedema noted in two patients (10%), normal higher intellectual function seen in all the twenty patients (100%), constipation was complained in one patient (5%), mental depression was noted in seven patients (35%), pain in the joints was complained in all patients (100%), raise in the temperature was noted in one patient (5%), loss of appetite seen in three patients (15%), cough noted in three patients (15%) and tiredness seen in ten patients (50%).

19. CONDITIONS OF UYIR THAADHUKKAL

1. Vaadham :

1. Among the twenty patients, three patients indicated breathlessness (15%), in one patient (5%) derangement of abaan was observed as constipation.
2. Derangement or viyaan was noted in all patients by the resulted movements of one side limbs and nutritional changes of the muscles (100%).
3. Derangement of udhaan was noted in three patients (15%) having cough.
4. Derangement of samaan was invariable in all the patients due to the derangement of other vaayus (100%)
5. Naagan was noted to be deranged in seven patients who were mentally depressed (35%)
6. Koorman was normal in all patients (100%).
7. Kirugaran was found to be deranged in eleven patients as evidenced by Drooling of saliva (55%) .
8. Derangement of dhevathathan was found in all the patients as indicated by lethargy or disturbed sleep rhythm (100%).

2. PITHTHAM :

1. The conditions of piththam with reference to its five types were studied in all patients.
2. Anar piththam was noted to be deranged in three patients as evidenced loss of appetite (15%) .
3. Ranjaga piththam was found to be deranged normal in all patients, no evidenced by low Hb% in blood.
4. Piraasaga piththam was found be normal in all the patients.
5. Alosaga piththam was normal in all patients. No evidenced for diminished vision.
6. Saadhaga piththam was found to be deranged in all patients evidenced by difficulty in attending their regular duties (100%).

3. KABHAM :

1. The conditions of kabham were studied with reference to five kabham.
2. Deranged avalmbagam was noted in three patients with symptoms of cough and expectoration (15%).
3. Derangement of kiledhagam was noted in eleven patients with symptoms of Drooling of saliva (55%) .
4. Pothagam was found to be normal in all twenty patients.
5. Derangement of tharpagam was noted in fourteen patients who had burning sensation of eyes and all over the body.
6. Sandhigam was found to be deranged in all patients with joint pain (100%).

20. CONDITIONS OF UDAL THAADHUKKAL

1. In all twenty patients, saaram was affected as evidenced by tiredness, lethargic and mentally depressed (100%) .
2. Senneer was normal in all the patients .
3. Oon was affected in all the patients as evidenced by muscle weakness (100%).
4. Kozhuppu was affected in all patients as evidenced by the difficulty of the half

of the body movements.

5. Enbu was affected in all patients as evidenced by immobilization of joints (100%).
6. Moolai was affected in five patients evidenced by feeling of heaviness of the body (25%) .
7. Sukkilam / Suronidham was normal in all twenty patients (100%).

20. PORIGALUM PULANGALUM

1. Mei (skin) was found to be normal in all patients .
2. Vaai (mouth) was affected in all patients evidenced by the elevation of the mouth.
3. kan (eye) was normal in all patients.
4. Mookku (nose) and sevi (ear) were found to be normal in all patients .

22. ENVAGAI THERVUGAL

1. Naa was normal all patients 100% and the sense of taste was found to be normal .
2. Niram was found normal in all patients .
3. Mozhi was affected in all the patients as evidenced by difficulty in speaking (100%) .
4. Vizhi was normal in all patients in five patients as evidenced by the presence of diminished vision (25%).
5. Sparisam was affected in all the patients as evidenced by muscle weakness (100%) .
6. At the time of admission in all patients had no constipation (100%). The colour and smell of stools are found to be normal in all patients.
7. In neerkuri, edai of the mooththiram was affected in eleven patients by the evidence of puscells in mooththiram (55%) .
8. The enjal was affected in three patients evidence of frequent micturition (15%) .

In neikuri the oil drop in urine,

- a) Lengthens like snake in one patients - vaadhaneer 5%.

- b) Spreads like ring in four patients - piththaneer 20%.
- c) Appearing like pearl in fifteen patients - kabhaneer 75%.
- d) Niram was affected in two patients evidenced by thick yellow colour .
- e) The manam and nurai were found to be normal in all the patients.

23. NAADI NADAI

Naadi was affected in ten patients (50%) as evidenced by vaadham in seven patients (35%), vaadha kabham in three patients (15%) .

OBSERVATION OF CLINICAL LABORATORY INVESTIGATIONS

At the time of admission routine laboratory investigations like Blood test, (WBC, Total count, Differential Count, Erythrocyte sedimentation Rate, haemoglobin level, sugar, urea, bleeding time, clotting time & PTT) and urine analysis were done properly.

HAEMATOLOGICAL STUDIES

1. OBSERVATION OF HAEMOGLOBIN CONTENT:

The haemoglobin level (Hb%) was increased in almost all the patients. In two patients (10%) the Hb% was ranged from 10% to 20%.

2. LEUCOCYTES TOTAL COUNT

Total WBC count was above 8000/ cumm in all the patients. In seventeen patients it was ranged from 8000 to 10000 / cumm and in three patients it was ranged from 10000 to 12000 / cumm

3. WBC - DIFFERENTIAL COUNT

Polymorphs and lymphocytes counts are normal in all twenty patients. Eosinophil count was normal in all patients .

4. ERYTHROCYTE SEDIMENTATION RATE

Among the twenty patients the ESR was increased in two patients (10%) and it

was showing to be normal in eighteen patients upto 30 to 40 mm / hr.

5. OBSERVATION OF BLOOD SUGAR

The random blood sugar was observed in all twenty patients it seemed to be normal in seventeen patients (85%) and it slightly increased in three patients (15%)

6. OBSERVATION OF BLOOD UREA

The blood urea was observed in all twenty patients it seemed to be normal in all patients (100%)

7. OBSERVATION OF SERUM CHOLESTEROL

The serum cholesterol was observed in all twenty patients it seemed to be normal in eighteen patients (90%) and it slightly increased in two patients (10%)

8. URINE ANALYSIS

For the analysis of urine in twenty patients, albumin was absent in all patients, sugar present in two patients (10%), pus and epithelial cells present in nine patients (45%)

9. MOTION ANALYSIS

No ova and cyst were found to all the twenty patients in motion analysis.

TREATMENT

The trial drugs were administered to the patients from the time of admission in the in-patients ward and continued till symptoms were reduced. Hence, pakkavaadham is a vaadha disease with nerve paralysis and so, the treatment aimed at providing relief from the symptoms and so, the treatment aimed at providing relief from the symptoms and slowing down the associated difficulties and control the predisposing factors.

The internal medicine, Manosilaikattu chenduram and the external application of Malkingini thylam with slight Thokanam and Varmam at the affected side were given depending upon the severity of the disease and the condition of the patient. Within this period most of the symptoms were relieved and the patients were more satisfied gradually. During those days some patients were advised to do Yogaasanam, Piraanaayaamam and Thiyanam as supportive therapies. They had satisfaction and quick relief than the others.

All the patients were also advised to observe paththiyam (Dietary and other restrictions) But, all aspects of Paththiyam could not be imposed in the In-patients ward for practical difficulties.

PROGNOSIS :

According to the clinical condition, the patients were graded into mild, moderate and severe categories for practical purposes and convenience. The patient reported satisfactory improvement as certain degree of relief from difficulties within 15 days from the commencement of the treatment. In mild cases good relief was reported within 10 days of the treatment, in moderate cases within 20 days and in severe cases within 25 days.

The patients who were also treating with Thokkanam, Varmam, Yogaasanam, Piranaayaamam and Thiyaanam as supportive therapies along with main therapy were got good and quick relief than the other patients.

Out of twenty patients.

1. Good relief (Normal blood pressure, controlled blood sugar, no Drolling of saliva, no giddiness, fluent speech and improvement in using the affected side) was reported in 14 patients.
2. Moderate relief (Normal blood pressure, control of blood sugar, reduced Drolling of saliva, reduced difficulty in speaking and occasional giddiness) was reported in

2 patients.

3. Partial improvement (Normal blood pressure, and Normal blood sugar, reducing Drooling of saliva and normal speaking was improved. But no effect in affected limbs) was reported in four patients.

Exercises to hands and legs were also advised to all patients.

The another twenty patients who were treated in the Out-patients ward also got good relief. They were also treated by special medicines and advised to do exercise.

No toxic or side effects were clinically and reportedly observed in any patient during the courses of the treatment.

SUMMARY

The research work on "PAKKAVAADHAM" was chosen with an intention to give solace to the patients who are suffering from the disease. The author had a chance of referring many siddha literatures and collected more information.

Medicines meant for research study where towards the patient is collected from

both siddha system as well as modern system to medicine and a case sheet was prepared. (Model case sheet is affixed at the end of this dissertation book)

Separate case sheets were maintained for every patient who were admitted in the In-patient ward. Twenty patients were treated in the In-patient and another twenty patients in the out patient ward. The internal medicine Manosilaikattu chenduram 100-200 mg twice a day with neem oil after food and the external medicine Malkingini thylam for the external application with Thokkanam at the sides where affected to the patients.

The patients who were also treating with Yogaasanam Piranaayaamam, Thiyanam, Thokkanam, Varmam as supportive therapies along with main therapy have got good and quick relief than the other patients.

The favourable effects of the drugs of the treatment good relief was reported within 10 days in mild cases, within 20 days in moderate cases and within 25 days in severe cases. The follow up study was done in the out-patient department.

Exercises to affected limbs and face were also advised to all patients.

At the time of discharge relief or improvement was observed clinically and there was maintenance of physiological conditions seen in all patients.

The twenty patients who were treated in out-patient ward also good relief.

Medicines were given to the patients until most of the symptoms were relieved as per siddha medicine it was regarded as a cure from the disease.

No toxic or side effects were observed clinically or reportedly in any patients during the course of treatment and the follow up study.

From the clinical study it could be inferred that treatment with trial drugs considerably improves the functions of,

1. Viyaana, which is responsible for all the movement in the body and also sensory and motor activities.
2. Abaanan, which is responsible for defaecation micturition, menstruation, parturition and ejaculation.
3. Naagan, which is responsible for movement of the eye ball, laziness, lassitude, quarrelling and arguing
4. Dhevathathan which is responsible for movements of the eye ball, laziness, lassitude, quarreling, arguing begging and much anger.
5. And samaanan which is responsible for normal digestion and correction of other vaayus.

It could be also inferred that the trial drugs inhibit further vascular disorders and regulate the other physiological and biological processes of the body.

Research findings reveal about the disease and its impact in the body. Statistics taken the help of details in the case sheet were give clear knowledge about the disease.

Available investigations in modern medicine were also considered for diagnosis and to follow the prognosis of the patients.

The efficacy of the trial drugs were studied by bio-chemical analysis and pharmacological evaluations.

CONCLUSION

When the internal medicine manosilai kattu chenduram administered to the pakka vaadham patient along with malkingini thailam for external application have a good relief.

Good clinical improved was observed in 14 (70%) patient out of 20 in-patient and 12 (60%) out patient.

Moderate clinical improvement was observed in 2 patients out of 20 in-patients and 4 out-patients.

Partially clinical improvement was observed in 4 patients out 20 in-patient and 4 out-patient ward.

Patient who had followed Yoga, Pranayamam, Thiyanam, Thokkanam, and Dietary advice have got good relief than others.

Because of engorging result clinically study may undertake with large number of patient with same drug with create a new era in the field of siddha medicine especially in the treatment of this diseases Pakkavadham. It may through light on relieving the patient from the clutches of crippling by this disease.

ANNEXURE – I
PREPARATION OF INTERNAL MEDICINE
Manosilai kattu chenduram

Ingredients :

Mano silai

Egg shell powder

Preparation :

Manosilai (raw) about the size of a Nellikai each, about 3 or 4 such pieces of manosilai katti are taken enclosed in a suitable kuduva in the midst of purified egg shell powder about 4 to 8 times the weight of manosilai, suitable lid is provided seven layers of clay cloth are made to the junction of the cover and kuduva dried and putam is applied in a pit in an air tight compartment with about 10 tolas waratties. On being cooled it is taken out, opened and seen that manosilai is melted and solidified into chenduram or pathangam inside the surface of the kuduva. Both the kuttu chenduram and pathangam may be carefully collected, this is powdered and preserved in a bottle. or in the alternative, instead of applying pudam as above, it is also advisable to burn the kuduva - kavacham over small flame of neem oil lamp for about six hours. Here also the kattu chenduram and pathangam may be obtained without lose in weight.

Dose : 2 to 4 grains may be given twice a day with vembu ennai

Uses : Hemiplegia, paralysis, of all kinds cerebral thrombosis, cerebral haemorrhage, orchitis, Jannipatham, valinai and convulsions of all types are cured.

- Pharmacopeia of Siddha Research Medicine

Preparation of External Medicine

khy;fp';fpdpj; ijk;

ruf;Ffs;

thYGitahprp njhyh 20,

gsp';Fr; rhk;gguhzp njhyh 2,

\$hjp';fha; njhyh 2,

F';Fkg;g{ njhyh 2,

fpuhk;g[njhyh 2,
 \$hjpg;gj;jphp njhyh 2,
 rpj;jpu\yk; nth; njhyh 2,
 Msptpij njhyh 2,

bra;Kiw

nkW;fz;l ruf;Ffis ,oj;Jg; g[l;oapy; brYj;jpf; Fg;gpg;g[lj;
 ijyghfkhfj; iyyk; th';ft[k;. ,j;iyj;ij gf;f thjj;jhy; neh;e;j iffhy;
 Cd';fSf;F nja;j;J tu ghjpf;fg;gl;l cWg;g[fs; eptph;j;jpahFk;
 - rpfpr;rhu;j;ejPgk;

PROPERTIES OF DRUGS

1. Manosilai

Synonyms	:	Arseni Disulphidum
Physical Properties	:	Red Arsenic (Ferric, Calcium, Chloride and Zinc
Action	:	Alternative, Febrifuge, Tonic

2. Valuzhuvai Arisi

Synonyms	:	Valuzhuvai, Kanguni, Mal kanguni, Athiparicham
Botanical Name	:	Celastrus Paniculatus
Family	:	Celastraceae

Regional nomenclature

Telugu	:	Mal kanguni - Vithlu
--------	---	----------------------

Sanskrit	:	Jyothismathi
Hindi	:	Mal kangni
Malayalam	:	Cherupunnai, Paluluva
Part Used	:	Seeds
Taste	:	Bitter
Vigour	:	Hot
Action	:	Anti vatha, Aphrodisiac, Stimulant, Alterative, Diaphoretic, Nervine tonic.

”tapw;Wf; fLg;g[typ khwhf; fpuhzp
gapj;jpa'; fhrky ge;j"; - rapf;fhhbthzhr;
Njpfh thjKk; nghe; bjhy;th YGittpijf;
fhjpet rpj;jh; bkhHp ahk; ”
- mfj;jpah; Fzthflk;

Usage

It is useful in treatment of vatha and kapha diseases, Paralysis, Neuralgias, Rheumatism, Blood Purifier in unani system. It relieves depression.

Habitat

In Himalayan regions and Deciduous forests of Tamil Nadu, Andhra, Karnataka,

Habit

Climbing Shrub

Phyto Chemicals :

Alkaloids, Celastrine, and paniculatine, phytosterol called celastrol.

Fatty Acids :

Formic acid (6%), Acetic acids (1.8%), Benzoic acid (2%), Palmitic acid (20%), Stearic acid (3.9%), Oleic acid (15.3%), Linoleic acid (38.8%), Linolenic acid (12.1%).

The Celastrin possesses stimulant action over brain which is not followed by

secondary depression.

Ref - Wealth of India

- Page 113

Dr.Nadkarni's Materia Medica

Other Features :

In Himalayan Districts and in Karnadaka and in Andhra Pradesh the decoction of seeds is used to treat paralysis, Rheumatism etc.

The oil is Rubifaciant seeds and alternative, stimulant and nervine tonic. The oil with benzoin, cloves, nutmeg and mace is a remedy is beri-beri as a stimulent.

Decoction of seeds with or without addition of aromatics is given in Rheumatism, Gout, Paralysis, Leprosy and Leucoderma.

Seeds are also used as in the form of pormatum made by mixing one part of oil with eight part of putter for application overhead. It is known as magzsudhi and believed to promote intelligence.

Because of the antispasmodic nervine tonic, aphrodisiac and nutrient Properties, It is used as substitute for mutilla occidentalis in the field of unani for Traces of copper content in this horly.

3. *Boswellia Serrata* Roxb (**gsp';Frhk;gpuhzp**)

Family : Burseraceae

Part	:	Gum
Properties	:	Benzoic acid
Taste	:	Pungent
Thanmai	:	Hot
Pirivu	:	Pungent
Color	:	Mixed color (Pale yellow, white block)

Actions : Stimulant, Expectorant, Counter-irritant,
Diuretic, aromatic, anti septic, anti-ithic.
Indications : Cough, Ulcer, eye diseases, Head ache,
Sinusitis and vadha diseases.

“ thjrP j';fz;nzha; khwhj; jiytypa[k;
XjKW gPdprKk; Xl;;L';fhz; - g{jj;jpy;
ntk;gpJjhd; vd;d kpUfrg;ig tha;f;fspf;Fk;
rhk;gguhzp vd;Dk; ruf;F”
- mfj;jpah; Fzthflk;

4. *Lipidium Sativum* - Linn (**Msp tpij**)

Part : Seeds
Taste : Sweet
Thanmai : Thatpam
Pirivu : Sweet
Color : Brown
Actions : Aperint, Aphrodisiac, Carminative, Demulcent
Diuretic, Emmenagogue, Galactagogue
Indications : Liver diseases, Dysentery, Indigestion, Hic-cup
Vadha diseases.

“ tPf;fk; mjpthe;jp/ nkdp typtha;t[e;
Jhf;Feuk; gpd;Fj;jy; bjhy;yHiy – xf;fhsk;
kPsp – aUrp tpij thjKk; nghFk;
Msptpij jd;dhy; mwp ”
mfj;jpah; Fzthflk;

5. *Myristica Fragrans* (*Myristica Officinalis*) (**rhjpf;fha;**)

Family Name : Myristicaceae

Part	:	Nut
Taste	:	Astringent, Pungent
Thanmai	:	Hot
Pirivu	:	Pungent
Color	:	Light Brown
Actions	:	Carminative, Narcotic, Stimulant, Tonic, Aphrodisiac, Aromatic,
Indications	:	Spermaturia, Vaadha diseases, Piththa diseases & Respiratory diseases

**”jhJel;lk; ngjp rUthrp a";rpu neha;
XJRth r';fhrk; cl;fpuzp - ntnjh
oyf;fha; tUk;gpzpnghk; Vw;wk;ay; gpj;j';
Fyf;fh Ue;Jth;f;Ff; TW”
- mfj;jpah; Fzthflk;**

6. Eugenia caryophyllata (,yt';fk;)

Family Name : Myrtaceae

Part	:	Dry Flowers
Properties	:	Eugenol, Caryophyllence, Eugenin
Taste	:	Pungent
Thanmai	:	Hot
Pirivu	:	Pungent
Color	:	Black
Actions	:	Carminative, Antispasmodic, Stomachic
Indications	:	Diarrhoea, Dysentry, Vomiting, Headache, Sinusitis, Dental pain & Piththa diseases.

**”gpj;j kaf;fk; ngjpbahL the;jpa[k;nghk;
Rj;jptpuj; jf;fLg;g[e; njhd;Wnkh - bkj;j
,yt';f'; bfhz;ltUf; nfw; RfkhFk;**

kyk';nf fl;Lbkd thH;j;J”.

- mfj;jpah; Fzthflk;

7. Plumbago zeylanica (rpj;jpu ly nth;g;gl;il)

Family Name : Plumbaginaceae

Part	:	Bark
Properties	:	Plumbagin
Taste	:	Pungent
Thanmai	:	Hot
Pirivu	:	Pungent
Color	:	Pale Brown
Actions	:	Anti periodic, Diaphoretic
Indications	:	Vaadha diseases, syphilis, Fever, Piles, Leprosy, Fistula and cancer.

**”Niya[k; tha;t[Rffd;dp khe;jfu”;
rpyrpu neha;thje; jPU';fhd; - nfhykapw;
nglida khnj gpw';Fbr”;rpj; uk; \yk;
nrLbrk;gigj; Ja;agw;g”; bra; ”.
- mfj;jpah; Fzthflk;**

8. Crocus sativus (F';Fkg; g{)

Family Name : Iridaceae

Part	:	Flower (Stamen & stigma)
Properties	:	Crocin, Crocetin, Picrocrocin, Carotene, Lycopene
Taste	:	Bitter
Thanmai	:	Hot
Pirivu	:	Pungent
Color	:	Reddish Yellow
Actions	:	Stimulant, Stomachic, Anodyne, Antispasmodic, Emmenagogue

Indications : Eye diseases, Ear diseases, Thirst and uterine diseases.

**"tpe;Jel;le; jhfkz;lk; nkfry"; Niyfgk;
tpe;JRuk; gpj;j';fhy; cr;rptyp - Ke;Jfz;zpy;
j';Fkg;g{ nthLWneha; rj;jpait eP';fbtd;why;
F';Fkg;g{ XhpjH;f; bfhs;".
- mfj;jpah; Fzthflk;**

9. Myristica Fragrans (Myristica Officinalis) (rhjpgj;jphp;)

Family Name : Myristicaceae

Part : Aril
Taste : Astringent, Pungent
Thanmai : Hot
Pirivu : Pungent
Color : Light Brown
Actions : Carminative, Stimulant, Aphrodisiac,
Aromatic, Spermaturia, Hypnotic, Vaadha
disease.
Indications : Spermaturia, Vaadha diseases, Piththa
diseases Fever, Dysentery, Diarrhea &
Respiratory diseases, fever.

**"rhjpjUk; gj;jphpf;Fj; jhgr; Rue;jzpa[k;
XJfpd;w gpj;jk; caU';fhd; - jhJtph;j;jp
a[z;lh'; fpufzpnah nlhj; fHpr;ryWk;
gz;lh'; Fiwna ghh; ".
- mfj;jpah; Fzthflk;**

INFERENCE

1. The all ingredients are much used in the treatment of Vaadha diseases.

2. They are having pungent, bitter, taste slightly. The tastes are neutralizing Vaadham.
3. They are all used as a tonic and contains many nutrients, assimilate easily by the oral route. So they act 'alternative' to increase the power and tone of the patients.
4. The 'Chithiramoolam' Contains "Thee" boodham so it destroys the vaadha diseases.
5. The vitamins and essential nutrients present in the medicine are preserved by the addition of ghee and honey.
6. The medicine itself has the "Anti-diabetic activity" it helps the diabetic patients to reduce the excess blood sugar while it has sweet taste.
7. The most drugs in these medicines are "Kayakalpa" drugs mentioned by the siddhars, so the medicine itself acts as a "Rejunuvator"
8. The medicine is tasteful and easily administered to bed ridden patients.
9. The active principles of all the drugs may take important part in the actions of the drugs.

ANNEXURE - II

GOVT. SIDDHA MEDICAL COLLEGE, PALAYAMKOTTAI
BIO-CHEMICAL ANALYSIS OF MANOSILAIKATTU CHENDURAM

Preparation of the extract :

100 mgs of chenduram is weighed accurately and placed into a clean beaker and added a few drops of conc. Hydrochloric acid and evaporated it well. After evaporation cooled the content and added a few drops of conc. Nitric acid and evaporated it well. After cooling the content add 20ml of distilled water and dissolved it well. Then it is transferred to 100 ml volumetric flask and made up to 100ml with distilled water – Mix well. Filter it. Then it is taken for analysis.

Qualitative analysis :

S.No	Experiment	Observation	Inference
1	TEST FOR CALCIUM : 2ml of the above prepared extract is taken in a clean test tube. Add 2ml 4% Ammonium oxalate solution is added to it	A white precipitate is formed	Indicates the presence of calcium
2	TEST FOR SULPHATE : 2ml of the extract is added to 5% barium chloride solution	A white precipitate is formed	Indicates the presence of sulphate
3	TEST FOR CHLORIDE : The extract is treated with silver nitrate solution	A white precipitate is formed	Indicates the presence of chloride
4	TEST FOR CARBONATE : The substance is treated with concentrated HCL	No brisk effervescence is formed	Absence of carbonate
5	TEST FOR ZINC : The extract is added with Potassium Ferrocyanide solution.	A white precipitate is formed	Indicates the presence of Zinc
6	TEST FOR IRON : FERRIC : The extract is treated with glacial acid and potassium	No blue colour is formed	Absence of Ferric Iron.
7	TEST OF IRON FERROUS : The extract is treated with concentrated	Blood red colour is formed	Indicate the presence of

	Nitric acid and ammonium thio cyanate		Ferrous in trace amount
8	TEST FOR PHOSPHATE : The extract is treated with ammonium Molybdate and concentrated nitric acid	No yellow precipitate informed	Absence of phosphate
9	TEST FOR ALBUMIN : The extract is treated with ferric chloride	No Yellow precipitated is formed	Absence of Albumin
10	TEST FOR TANNIC ACID : The extract is treated with Esbach's reagent	No blue black precipitate is formed	Absence of Tannic acid
11	TEST FOR UNSAURATION : Potassium permanganate solution is added To the extract	It does not get decolorized	Absence of unsaturated compound
12	TEST FOR THE REDUCING SUGAR : 5ml of Benedict's qualitative solution is taken in test tube and allowed to boil for 2mts and added 8-10 drops of the extract and again boil it for 2 mts.	No colour change occurs	Absence of Reducing sugar
13	TEST FOR AMINO ACID : One or two drops of the extract is placed on a filter paper and dried it well after drying 1% Ninhydrin is sprayed over the same and Dried it well.	No violet colour is formed	Absence of Amino acid

ANNEXURE - III
PHARMACOLOGICAL ANALYSIS
ANALGESIC ACTION OF MANOSILAI KATTU CHENDURAM

Introduction :

According to siddha medicine the Manosilai Kattu chenduram is indicated in vatha diseases. From this indication the drug Manosilai Kattu chenduram might possess analgesic activity.

Aim :

To study the analgesic effect of Manosilai Kattu chenduram on albino rats by tail flick method.

Materials and Methods :

Preparation of the test drug

100mg of Manosilai Kattu chenduram was suspended in 5ml of water and 5ml of honey of suspending agent. This 1 ml contained 100mg of the test drug.

Equipement :

Hot water bath

Procedure :

Six male albino rats (weighing 80 -100gms) were used in three groups. The animals were allowed to free access to food and water until they brought for the experiment. The animals which showed the positive response to the stimulus within a given time were selected for the study.

After the selection of animals which were responding to stimulus with 2 seconds, they were divides in to 3 groups, each group consisting of two rats.

The hot water was maintained at 55° C. The tip of the tail was immersed into the water bath and the time was noted when the rat flicked the tail.

First group was administered with Manosilai Kattu chenduram at a dose of

100mg / 100gm body weight of the animal.

Second group was administered with paracetamol at a dose of 10mg /gm of body weight. Third group was given to the 1ml of water and kept as control.

After the drug administration, the reaction time of each rat after half an hour and one hour were noted in each group (when a rat fails to flick the tail, it should not be continued beyond 8 seconds to avoid injury) and the average was calculated.

The results of control group, standard group and drug treated group were tabulated and compared.

Results :

Effect to Manosilai Kattu chenduram

S N	Name of the drugs / Groups	Dose 100 gram body weight	initial reading	After drug Administration			Mean difference	Remarks
				½ hr average	1 hr average	1 ½ hr average		
1	Manosilai Kattu chenduram	100 mg / 1ml	2.5	2.5	3.5	3.5	-	Mild
2	Paracetamol	20mg / 1 ml	2.5	4.0	5.0	6.5	-	
3	Water	1 ml	2.5	2.5	2.5	3.0	-	

Inference :

From the above tabulation it is noted that Manosilai Kattu chenduram has Mild analgesic action.

ACUTE ANTI-INFLAMMATORY STUDIES ON MANOSILAI KATTU CHENDURAM

Aim

To study the acute anti – inflammatory effect on Manosilai Kattu chenduram.

Method :

The acute anti – inflammatory activity of Manosilai Kattu chenduram was screened by rat Hind paw edema method.

Preparation of the test drug :

200 mg of Manosilai Kattu chenduram was suspended in 5 ml of water and 5ml of honey. From the above test drug 1ml was administered orally and this 1ml contain 100 mg Manosilai Kattu chenduram

Procedure :

The anti – inflammatory activity of Manosilai Kattu chenduram was studied in healthy Albino – rats weighing 100-150gms. Six rats were selected and divided into three groups, each containing three rats. The first group was given distilled water 1ml, internally and was kept as control. The second group was given the test drug at a dose of 20mg / 100gms body weight. The third group was given ibuprofen at a dose of 20mg / 100g body weight.

Before administration of the drug, the hind paw volume of all rats were measured by dipping the hind paw upto the tibiodorsal junction in a mercury plethymography. Soon after measurement, the drug was administered internally.

An hour after administration of the drugs a subcutaneous injection of 0.1ml of 1% W/V of carrageenin in water was injected in the plantar surface of both the hind-paw and volume was measured once again. The difference between the initial and final volumes would show the amount of inflammation. Taking the volume in the control group as 100% of inflammation, the inflammation or anti – inflammatory effect of the drug was calculated. Tabulations of the results were recorded.

Results**Effect of Manosilai Kattu chenduram**

S. N	Name of drug / groups	Dose 100 gram body weight	Initial reading average	Final reading average	Mean difference	Percentage in inflammation	Percentage inhibition	Remarks
1	Manosilai Kattu chenduram	100 mg / 1ml	0.7	1.25	0.55	61.1	38.9	Moderate
2	Ibu brufen	20mg / 1 ml	0.80	0.85	0.05	6.25	93.75	
3	Water	1 ml	0.65	1.5	0.85	100.0	-	

Inference :

From the above experiment it is observed that the test drug Manosilai Kattu chenduram has moderate acute anti inflammatory action.

CHRONIC ANTI INFLAMMATORY STUDY BY COTTON – PELLETS GRANULOMA METHOD

Aim :

To study the chronic anti inflammatory activity of the drug in albino rats by cotton pellets implanatation (granuloma) method.

Procedure :

Cotton pellets each weighing 10mg were prepared and sterilised in an autoclave for about one hour under 15 lbs atmosphere pressure. Six albino rats each weighing between 100-200gms were selected and were divided into 3 groups. Each rat was anaesthetized with ether and cotton pellets were implanted subcutaneously in the groin, two in each side.

From the day of implantation, one group of animals received Manosilai Kattu chenduram at a dose of 200mg of body weight. Another group of animals were received distilled water. Last group was given ibu brufen at dose of 20mg / 100gm body weight.

On the eighth day the rats were sacrificed and the pellets were removed weighted. Then they were put in a incubator at 60° C – 80° C and then weighed.

The concordant weight was noted for all groups and compared.

The effect of Manosilai Kattu chenduram in chronic anti inflammatory study.

Results**Effect of Manosilai Kattu chenduram**

S. N	Name of drug / groups	Dose 100 gram body weight	Pellet weight	Pellet weight of the granuloma of drugs	Mean difference	Per cent - tage inflammation	Per cent - tage inhibition	Remarks
1	ManosilaiKattu chenduram	20 mg / 1ml	10 mg	145mg	-	55	45	Moderate
2	Ibu brufen	20mg / 1 ml	10 mg	56mg	-	22.4	77.6	
3	Water	1 ml	10 mg	250mg	-	100.0	-	

Inference :

From the above experiment it is observed that the test drug Manosilai Kattu chenduram has moderate acute anti inflammatory action.

ANTI COAGULANT EFFECT OF MANOSILAI KATTU CHENDURAM IN DIFFERENT FORMS (IN – VIVO)**Aim :**

To study the anti – coagulant effect of Manosilai Kattu Chenduram

Preparation of test drug :

As the Manosilai is Chenduram in nature and incompletely dissolved in distilled water or in blood, the chenduram form of Manosilai Kattu Chenduram is taken for study.

- i. 100 gm of Manosilai Kattu Chenduram was dissolved in 1ml of distilled water.
- ii. 100 gm of Manosilai Kattu Chenduram was dissolved in 1ml of distilled water and mixed with 1ml of human fresh blood in different quantity levels were estimated.

The fresh blood taken from the human source is the initial time and the blood coagulated inside the capillary tube and form a fibrin thread is the Final time. The time taken to coagulate the blood inside the capillary tube is the clotting time and the mean clotting time is calculated tube is the clotting time and the mean clotting time is calculated for each experiment. The same experiment was carried out into distilled water, aspirin, EDTA and heparin subsequently. The values are tabulated.

**ANTI – COAGULANT EFFECT OF MANOSILAI KATTU CHENDURAM IN
DIFFERENT FORMS (IN – VIVO)**

Category	Preparation of sample	Sample dose	Blood dose (in ml)	Initial time			Final time			Mean clotting time		
				Hr	Min	Sec	Hr	Min	Sec	Hr	Min	Sec
A	Fresh Blood		1	0	54	30	1	0	15	0	5	45
B	Distilled water	1 ml	1	0	54	44	1	3	10	0	8	26
C	Aspirin (Powdered)	5mg	1	0	54	41	1	2	15	0	7	34
D	Aspirin (Powdered)	25mg	1	0	54	42	1	1	55	0	7	13
E	EDTA	0.6mg	1	0	54	42	168	54	43	168	0	0
F	Heparin	0.025 ml	1	0	54	30	-	-	-	Not Coagulated		
G	100 mg of Chenduram dissolved in 1ml of distilled water	0.125 ml	1	0	54	31	1	1	15	0	6	44
H	- Do -		1	0	54	32	1	1	35	0	7	03
I	- Do -	0.25 ml	1	0	54	33	1	1	50	0	7	17
J	- Do -	0.75 ml	1	0	54	34	1	6	10	0	11	36
K	- Do -	1 ml	1	0	54	35	1	12	10	0	17	35

INFERENCE :

The drug as chenduram form shows mild anticoagulant effect.

ANTI – INFLAMMATORY STUDIES ON MALKINGINI THYLAM

Procedure :

Anti – inflammatory activity of Malkingini Thylam was studied in healthy albino rats, weighing between 100-150gms. For studying acute inflammation, rat hind paw oedema method was used.

Six albino rats were selected and divided into three groups each containing two rats. To first group distilled water was given and kept as control. Before the application of the drug, the hind paw volume of all rats were measured. This was done by dipping the hind paw upto the tibiodorsal junction in Mercury plethysmograph.

Subcutaneous injection of 0.1 % of carrageein (W/V) in water was made into planter surface of both the hind paw of each rat. To the test group, Malkingini thylam was topically applied frequently over the inflammed surface in thin layer. To the control group, on drug was applied over the inflammed surface. One and helf hours after injection the hind paw volume was measured once again. The difference between the intial and final volumes shows the amount of inflammation.

Taking the volume in the control group as 100% of inflammation, the inflammation or anti-inflammatory effect of the group is calculated.

Results

Effect of Malkingini Thylam

S. N	Name of drug / groups	Dose 100 gram body weight	Pellet weight	Pellet weight of the granuloma of drugs	Mean difference	Per-centage inflammation	Per-centage inhibition	Remark
1	Malkingini thylam	1 ml	0.9	1.5	0.6	66.6	33.4	Mild
2	Ibu brufen	20mg/ 1ml	0.80	0.85	0.05	6.25	93.75	
3	Water	1 ml	0.65	1.5	0.85	100.0	-	

Inference :

The Malkingini Thylam has mild effect in Acute anti inflammatory conditions.

CASE SHEET PROFORMA FOR "PAKKA VATHAM"
GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL
POST GRADUATE DEPARTMENT,
PALAYAMKOTTAI, TIRUNELVELI-2
 Branch - III Sirappu Maruthuvam

I.P.No : Occupation :
 Bed No : Income :

Ward	:	Nationality	:
Name	:	Religion	:
Age	:	Date of Admission	:
Sex	:	Date of Discharge	:
Permanent Address	:	Diagnosis	:
		Result	:
		Medical Officer	:

COMPLAINTS AND DURATION

H/O. PRESENT ILLNESS

H/O. PAST ILLNESS

H/o. Diabetes Mellitus, Hypertension, Pulmonary Tuberculosis and STD

TREATMENT HISTORY

FAMILY HISTORY

Similar episode in the family :

H/o Consanguinous marriage of parents :

PERSONAL HISTORY

Marital Status :

Siblings :

Habits - Smoking, alcoholic,
Tobacco chewing. :

Diet. :

MENSTRUAL HISTORY :

OBSTETRICAL HISTORY :

PROVISIONAL DIAGNOSIS :

GENERAL EXAMINATION

Consciousness	:
Comfortable / Not Comfortable	:
Built	:
Nutrition	:
Anaemia	:
Jaundice	:
Cyanosis	:
Lymphadenopathy	:
Clubbing	:
Oedema	:
Vital Signs	
Temp	:
BP	:
Pulse :	
Rate	:
Rhythm	:
Volume	:
Character	:
RR	:
HR	:
Felt in all Peripheral area	:
Condition of arterial wall	:
Radio femoral delay	:

SIDDHA ASPECT

Nilam

Kurinchi

Mullai

Marutham

Neithal

Palai

Udal Nilai

Vatham

Pitham

Kapam

Kalappu Udal

Gunam

Sathuvam

Rasatham

Thamasam

Iymporigal

Kan

Kathu

Mooku

Vaai

Mei

Kanmenthiriyam

Kai

Kaal

Vaai

Eru Vaai

Karu Vaai

Uyir thathukkal

A. Vatham

Piranan

Abanan

Viyanan

Uthanan

Samanan

Nagan

Koorman

Kirukaran

Devathathan

Thananjeyan

B. Pitham

Anarpitham

Ranjagapitham

Sathagapitham

Alosagapitham

Pirasagapitham

C. Kabam

Avalambagam

Kilethagam

Pothagam

Tharpagam

Santhigam

XI. Udal Thathukkal

Saaram

Senneer

Oon

Kozhuppu

Enbu

Moolai

Sukkilam / Suronitham

XII. Envagai Thervugal

Naadi

Sparisam

Naa

Niram

Mozhi

Vizhi

Malam -

Niram,

Edai,

irugal,

ilagal

Moothiram

a) Neerkuri

b) Neikuri

Niram

Manam

Edai

Nurai

Enjal

MODERN ASPECTS

Examination of Cranial Nerves

I. Olfactory nerve

Smell :

II. Optic Nerve :

Acquit of vision	:
Field of Vision	:
Colour Vision	:
Accommodation reflex	:
Light reflex	:
III. Oculomotor N	:
IV. Trochlear nerve	:
V. Trigeminal N	
Sensation on face	:
VI. Abducent N	
Movements of eyeball	:
Diplopia	:
VII. Facial N	
Wrinkling of forehead	:
Closing the eyelids	:
Showing teeth	:
Whistling	:
Blowing the cheek	:
Eating	:
Taste in the ant 2/3rd of the tongue	:
H/o Hyperacoustis.	:
VIII. Vestibulo - Cochlear N	
Hearing	:
Rinnes test	:
Webers test	:
H/o.Vertigo	:

IX. Glosso Pharyngeal N

Taste in the Post 1/3rd of the tongue :
Gag reflex :
Palatal reflex :

X. Vagus N

Gag reflex :
H/o. nasal regurgitation :

XI. Spinal accessory N

Shrugging of shoulder :
Turning the head against resistance :

XII. Hypo glossal N

Movement of tongue :
Tongue deviation :
Fasciculation :
Wasting :

EXAMINATION OF CENTRAL NERVOUS SYSTEM

Handedness :

HIGHER FUNCTION TEST

1. Mental Function :
 Appearance :
 Behavior :
 Communication :
 Intelligence :
 Educational level :
 Language :

- | | |
|-------------------------|---|
| Dressing | : |
| Interest on Surrounding | : |
| Expression to greeting | : |
| Conversation | : |
-
- | | |
|-------------------------------|--------|
| 2. Emotion | : |
| 3. Sleep | : |
| 4. Delusion and hallucination | : |
| 5. Orientation : | Time |
| | Place |
| | Person |
-
6. Clouding of consciousness (Dementia / Delirium)
7. Memory :
- | | |
|------------------|---|
| Remote memory | : |
| Recent memory | : |
| Immediate memory | : |
8. Speech :
- | | |
|----------------------|---|
| Articulation | : |
| Fluency | : |
| Verbal comprehension | : |
| Naming | : |
| Repetition | : |
| Reading | : |
| Writing | : |
| Apraxia | : |
| Acalculia | : |
| Alexia | : |
- Comprehension of language visual field

MOTOR SYSTEM

1. Bulk of the Muscles

R

L

Upper arm :
Fore arm :
Thigh :
Leg :

2.. Power

Hand Grip			Right	Left
Upper Limb	Shoulder	Extension		
		Flexion		
		Abduction		
		Adduction		
		Rotation		
	Elbow	Extension		
		Flexion		
	Wrist	Flexion		
		Extension		
		Pronation		
		Supination		
		Abduction		
		Adduction		
Lower Limb	Hip Joint	Extension		
		Flexion		
		Abduction		
		Adduction		
		Rotation		
	Knee Joint	Flexion		
		Extension		
	Ankle Joint	Dorsi Flexion		
		Plantar Flexion		
		Inversion		
		Eversion		

Grade : 0 - Absence ; 1 – Present ; 2 - Brisk ; 3 – Very Brisk; 4 – Clonus

3. Tone : R L

Upper Limb (Flexors) :

Biceps :

Triceps :

Elbow :

Wrist :

Lower Limb (Extensors) :

Knee

4. Co-ordination :

Upper limb		R	L
Finger nose test	:		
Finger - finger nose	:		
Tapping in a circle	:		
Dysdiadochokinesis	:		
Lower Limb		R	L
Knee shin ankle test	:		
Draw a circle in air	:		
Tandem walking	:		
Foot pat test	:		
Under burgers test	:		

5. Involuntary movements :

Epilepsy, myoclonus, tremor, athetosis, chorea, hemiballismus, dyskinesia, dystonia, torticollis, ties, myokymia, asterixis, tetany and cramps - not / present.

EXAMINATION OF SENSORY SYSTEM

Superficial		R	L
Touch	:		
Pain	:		
Temp	:		
Deep		R	L
Position sense	:		
Joint Sense (thumb)	:		
Vibration sense	:		
Tactile localization	:		
Two Point discrimination	:		
2-5 mm Pulp of the finger	:		
2-3 cm Palm	:		

4 cm Sole	:
5 cm chest, Leg, Back	:
Stereognosis	:
Graphaesthesia	:
Sensory inattention	:

REFLEXES :

1. Superficial reflex

Corneal reflex	:
Conjunctival (T ₆ - T ₁₂)	:
Abdominal reflex	:
Cremasteric reflex	:
Plantar reflex	:
Oppenheims sign	:
Gardons reflex	:
Hoffman reflex	:
Wartenberg's sign	:

2. Deep Reflex

Biceps jerk	:
Triceps jerk	:
Supinator jerk	:
Knee jerk	:
Ankle jerk	:
Jaw jerk	:

Clonus :

Ankle Clonus	:
Patellar Clonus	:

3. Released reflexes (Primitive reflexes)	:	R	L
Grasp reflex (radial border)	:		
Avoiding reflex (ulnar border)	:		
Palmar mental reflex (thenar eminence)	:		

Sucking reflex (Angle of mouth)	:
Snout reflex	:
Galbellar tap reflex	:

CEREBELLAR SIGNS

Dyssynergia	:
Dysmetria	:
Dysidiadochokinesia	:
Rebound phenomenon	:
Hypotonia	:
Abnormalities of the gait	:
Speech disturbances	:
Scanning	:
Dysarthria	:
Nystagmus	:
Pendular Knee jerk	:
Intention tremor	:
Titubation	:

GAIT

Circumduction	:
---------------	---

SIGNS OF MENINGEAL IRRITATION

Neck Stiffness	:
Kernig's sign	:

BRUIT

Face	:
Occiput	:
Carotid	:

EXAMINATION OF OTHER SYSTMS :

1. Cardio Vascular system

Inspection	:
Palpation	:
Percussion	:
Auscultation	:

2. Respiratory System

NVBS

3. Abdomen :

Tenderness	:
Organomegaly	:
Free fluid	:

INVESTIGATION :

I. Blood :

TC	:
DC	:
ESR	:
HB	:
Bleeding Time	:
Clotting Time	:
Blood Sugar	:
Blood Urea	:
Lipid Profile	:
Serum Cholesterol	:
Serum Creatinine	:
VDRL	:
HIV	:

II. Urine

Albumin	:
Sugar	:
Deposits	:

III. X-Ray / ECG

Chest :
Skull :

IV. CT Scan :

V. MRI Scan :

Case Summary :

DIAGNOSIS :

**GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL
POST GRADUATE DEPARTMENT
PALAYAMKOTTAI, TIRUNELVELI – 627 002
SIRAPPU MARUTHUVAM**

Daily Report

7. Anderson's Muir's textbook of pathology.
8. L.V.Asolkar, K.K.Kakkar and O.J.chakre's Glossary of Indian Medicinal plants with active principles.
9. D.W.Barritt, Alan E.Read and R.Longton Hewe's Modern Medicine.
10. B.D. Chaurasia's Human Anatomy vol-I, II & III
11. R.N Chopra, S.L., Nayar and I.C. Chopra's Glossary of Indian Medicinal plants.
12. J.G.Chusid's correlative Neuro-anatomy and Functional Neurology.
13. Cunningham's manual of practical anatomy.
14. Davidson's principles and practice of medicine.
15. Dhanvandhiri vaidhdhiyam, Part I & II
16. Douglas S.Katz Kevin, R.Math and st nart, A.Graskin's Radiology secrets.
17. Gray's Anatomy.
18. A.J. Harding rains and H.David Ritchie's Bailey and love's Short Practiece of surgery.
19. Harrison's Principles of Internal Medicine.
20. Hutchison's clinical methods.
21. C.W.H. Haward's current Medical Treatment.
22. N.Kandaswamy pillai's History of siddha medicine.
23. V.Kandaswamy mudhaliyaar's Aaviyalikkum Amudhamurai churukkam.
24. C.Kannuswamy pillai's Padhaarthta kuna vilakkam Part I & II
25. C. Kannuswamy mudhaliyaar's siddha Maruththuvam
26. Macleod's clinical examination.
27. Meino de souza's How to examine a patient.

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CLINICAL LABORATORY INVESTIGATIONS

S.N	IP.NO	WBC Total count (Cu mm)		WBC Differential Count						ESR Mm ½ hr, 1 hr	Hb %		Sugar mgs RA%		Urea mgs %		Cholesterol mgs %		Bleeding Time Min, sec		Clotting time Min, sec		Urine analysis		Motion analysis		
		BT	AT	P	L	E	P	L	E																		BT
1	671	9000	9100	60	40	4	60	40	3	15-30	15-30	70	75	100	100	30	35	210	200	1.55	1.55	2.10	3.00	Pus	Pus	-	-
2	763	10100	10100	68	39	3	68	39	4	7-14	7-14	70	80	100	110	30	30	200	220	2.15	2.15	3.10	3.00	Epi	-	-	-
3	811	8500	9200	58	30	12	58	30	8	7-15	10-18	75	80	87	80	22	32	146	150	1.50	1.50	2.40	4.00	Cris	-	-	-
4	852	9600	10000	58	40	2	58	40	2	6-18	6-18	64	64	120	120	20	28	160	160	1.52	1.50	2.10	2.20	Pus	-	-	-
5	948	10000	9600	70	40	6	68	38	6	14-24	11-20	68	70	78	80	30	35	172	170	1.40	1.40	3.00	3.20	NAD	-	-	-
6	1086	8600	9200	65	30	5	68	29	3	2-4	3-6	72	80	198	166	23	23	162	160	1.40	1.50	3.35	3.30	Sug	Sug	-	-
7	1177	8000	8400	69	23	8	65	31	4	2-4	2-4	75	66	89	107	30	38	259	162	1.40	1.50	2.00	2.20	Pus	Pus	-	-
8	1214	9200	8100	56	42	2	58	38	4	18-35	14-30	67	65	79	86	20	26	168	265	1.50	1.55	3.10	4.00	NAD	NAD	-	-
9	1234	8000	8300	59	36	5	62	34	2	3-7	2-5	68	71	82	80	30	35	171	170	2.00	2.20	2.50	2.50	Pus	Pus	-	-
10	1320	9000	9000	60	36	4	58	24	4	2-5	10-20	67	70	120	120	20	20	180	190	2.05	2.05	3.30	3.05	-	-	-	-
11	1420	9000	9200	68	36	4	66	36	4	10-20	2-5	66	80	100	126	30	30	179	190	1.48	2.54	2.50	3.06	Pus	Pus	-	-
12	1863	9400	9000	54	44	2	64	32	4	32-60	7-18	75	70	94	86	28	28	164	159	1.45	1.50	2.40	3.16	NAD	NAD	-	-
13	2239	9000	9000	60	36	4	68	30	4	10-22	18-40	69	65	239	126	30	20	253	250	2.00	2.00	2.55	3.08	Sug	NAD	-	-
14	2296	9000	9600	60	28	2	64	34	2	30-92	30-65	71	68	127	104	30	35	305	240	2.00	1.50	3.05	3.06	Pus Al Sug	NAD	-	-
15	2505	9400	9000	76	20	4	60	20	2	32-60	10-20	66	70	196	120	20	20	185	160	1.50	2.00	2.50	3.00	Sug NAD	-	-	-
16	2526	9600	9000	66	30	4	68	30	2	6-13	6-12	71	80	79	80	18	20	154	160	2.00	1.50	4.00	4.00	NAD	-	-	-
17	2532	8600	8600	60	30	6	68	35	4	15-30	15-30	80	80	100	80	28	20	160	150	1.40	1.30	2.38	3.00	Sug NAD	-	-	-
18	2832	9900	9000	66	30	4	68	30	4	30-62	20-40	71	80	95	80	18	20	162	170	2.10	1.58	3.00	3.50	NAD	-	-	-
19	9	9500	9000	54	44	2	50	40	2	5-11	5-10	71	70	98	90	20	28	148	140	1.48	1.38	3.00	3.06	NAD	-	-	-
20	3037	8200	8000	54	32	14	58	30	4	2-5	2-4	88	88	96	96	28	28	151	160	2.00	3.50	3.50	3.40	NAD	-	-	-

S.No - Serial Number : I.P No. - Inpatient ward number : WBC - White blood corpuscle : EPi - Epithelial cell
P - Polymorphs : L - Lymphocytes : E - Eosinophils : ESR – Erythrocyte sedimentation rate
Hb - Haemoglobin : BT - Before treatment : AT - After treatment : Sug – Sugar

CLINICAL PRESENTATION
Case summary of inpatients

S N	Particulars of Patients	Clinical Presentation at the time of admission	Clinical condition at the time of discharge	Medication	Clinical improve- ment
1	Mr.Vellaipandi IP No. : 671 DOA : 23.03.06 DOD : 23.05.06 NDT : 46 Diabetes Mellitus	Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII 2. Power : UL 0/5 : LL0/5 3. DTR : UL. II : LL.II 4. B.P : 140/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 2/5 LL. 2/5 2. DTR : UL. I LL. I 3. BP: 140/90 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuras 2. Malkingini thylam 3. Thokkanam 4. Varmam	Moderate
2	Mr.Makkali IP No. : 763 DOA : 05.04.06 DOD : 29.04.06 NDT : 24	Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 3. DTR : UL.IV : LL.IV 4. B.P : 120/80 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL.III LL.III 3. BP: 120/90 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuras 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good
3	Mr.Natarajan IP No. : 811 DOA : 12.04.06 DOD : 06.05.06 NDT : 24	Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 3. DTR : UL.II : LL.II 4. B.P : 140/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL. I LL. I 3. BP: 130/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuras 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good
4	Mrs.Mary IP No. : 852 DOA : 17.04.06 DOD : 16.05.06 NDT : 29 Hypertension :	Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL0/5 : LL0/5 3. DTR : UL.III : LL.III 4. B.P : 140/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL. I LL. I 3. BP: 140/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuras 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good

5	Miss.Siva sankari IP No. : 948 DOA : 25.04.06 DOD : 27.05.06 NDT : 32	Pakkavatham : Rt 1. Cranial nerve involvement : VII 2. Power : UL0/5 : LL0/5 3. DTR : UL.III : LL.III 4. B.P : 140/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL I LL. I 3. BP: 140/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuras 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good
6	Mr.Rajamani IP No. : 1086 DOA : 13.05.06 DOD : 27.05.06 NDT : 14 Diabetic	Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL2/5 : LL2/5 3. DTR : UL.II : LL.II 4. B.P : 130/80 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL I LL I 3. BP: 130/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuras 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good
7	Mr.Allahpitchai IP No. : 1177 DOA : 23.05.06 DOD : 05.07.06 NDT : 43	Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII 2. Power : UL2/5 : LL2/5 3. DTR : UL.II : LL.II 4. B.P : 150/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 3/5 LL. 3/5 2. DTR : UL. I LL. I 3. BP: 130/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuras 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good
8	Mrs.Armugam IP No. : 1214 DOA : 27.05.06 DOD : 21.07.06 NDT : 55	Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 3. DTR : UL.IV : LL.IV 4. B.P : 160/100 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL. I LL I 3. BP: 120/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuras 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good
9	Mr.Esakki devar IP No. : 1234 DOA : 29.05.06 DOD : 06.07.06 NDT : 38	Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 3. DTR : UL.III : LL.III 4. B.P : 120/80 mm Hg 5. Fundus Grade I	Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL. I LL. I 3. BP: 120/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuras 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good

		6. Plantar extensor response			
10	Mr.Kumar IP No. : 1320 DOA : 10.06.06 DOD : 02.08.06 NDT : 53	Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII 2. Power : UL2/5 : LL2/5 3. DTR : UL.III : LL.III 4. B.P : 120/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 3/5 LL. 3/5 2. DTR : UL II LL. II 3. BP: 120/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuram 2. Malkingini thylam 3. Thokkanam 4. Varmam	Partialy
11	Mrs.Sundarammal IP No. : 1429 DOA : 21.06.06 DOD : 29.08.06 NDT : 69 Hypertension	Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL2/5 : LL2/5 3. DTR : UL.III : LL.III 4. B.P : 140/80 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL I LL I 3. BP: 120/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuram 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good
12	Mr.Lakshmanan IP No. : 1863 DOA : 10.08.06 DOD : 30.08.06 NDT : 20	Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 3. DTR : UL.III : LL.III 4. B.P : 140/80 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL. I LL I 3. BP: 140/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuram 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good
13	Mr.Kashim IP No. : 2239 DOA : 28.09.06 DOD : 14.12.06 NDT : 77 Hypertension	Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 3. DTR : UL.IV : LL.IV 4. B.P : 140/80 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 3/5 LL. 3/5 2. DTR : UL.II LL.II 3. BP: 140/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuram 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good
14	Mr.Subbiah IP No. : 2296 DOA : 09.10.06 DOD : 01.12.06	Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII	Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL. I	1. Manosilai kattu chendhuram 2. Malkingini	

	NDT : 53	2. Power : UL1/5 : LL1/5 3. DTR : UL.IV : LL.IV 4. B.P : 150/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response	LL I 3. BP: 130/80 mmHg 4. Fundus Grade I 5. Plantar extensor	thylam 3. Thokkanam 4. Varmam	Good
15	Mrs.Innashirayammal IP No. : 2505 DOA : 11.11.06 DOD : 14.01.07 NDT : 64 Hypertension	Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL0/5 : LL0/5 3. DTR : UL.IV : LL.IV 4. B.P : 160/100 mmHg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 3/5 LL. 3/5 2. DTR : UL I LL. I 3. BP: 140/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuram 2. Malkingini thylam 3. Thokkanam 4. Varmam	Partially
16	Mr.Mayil ravanan IP No. : 2526 DOA : 14.11.06 DOD : 30.11.06 NDT : 16 Hypertension	Pakkavatham : Rt: Features : 1. Cranial nerve involvement : VII 2. Power : UL0/5 : LL0/5 3. DTR : UL.IV : LL.IV 4. B.P : 140/80 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 1/5 LL. 1/5 2. DTR : UL. II1 LL. III 3. BP: 140/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuram 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good
17	Mr.Vijayan IP No. : 2532 DOA : 15.11.06 DOD : 29.12.06 NDT : 44 Hypertension	Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII 2. Power : UL2/5 : LL2/5 3. DTR : UL.III : LL.III 4. B.P : 120/80 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL.4/5 LL. 4/5 2. DTR : UL. I LL. I 3. BP: 120/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuram 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good
18	Mr.Madasamy IP No. : 2832 DOA : 12.12.06 DOD : 13.01.07 NDT : 32	Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 3. DTR : UL.IV : LL.IV 4. B.P : 120/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 4/5 LL. 4/5 2. DTR : UL I LL. I 3. BP: 120/90 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhuram 2. Malkingini thylam 3. Thokkanam 4. Varmam	Good

19	Mr.Arumugavel IP No. : 9 DOA : 02.01.07 DOD : 24.01.07 NDT : 22 Hypertension	Pakkavatham : Lt Features : 1. Cranial nerve involvement : VII 2. Power : UL1/5 : LL1/5 3. DTR : UL.IV : LL.IV 4. B.P : 120/80 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 2/5 LL. 2/5 2. DTR : UL.III LL.III 3. BP: 120/80 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhura 2. Malkingini thylam 3. Thokkanam 4. Varmam	Partialy
20	Mrs.Arumugam IP No. : 310 DOA : 02.02.04 DOD : 12.03.07 NDT : 38 Hypertension	Pakkavatham : Rt Features : 1. Cranial nerve involvement : VII 2. Power : UL2/5 : LL2/5 3. DTR : UL.III : LL.III 4. B.P : 130/90 mm Hg 5. Fundus Grade I 6. Plantar extensor response	Features : 1. Power : UL. 3/5 LL. 3/5 2. DTR : UL II LL. II 3. BP: 130/90 mmHg 4. Fundus Grade I 5. Plantar extensor	1. Manosilai kattu chendhura 2. Malkingini thylam 3. Thokkanam 4. Varmam	Partialy

DOA - Date of Admission ; DOD - Date of Discharge ; UL – Upper Limb
LL - Lower Limb ; DTR - Deep Tendon Reflex ; B.P. – Blood Pressure

Examination of Hand Grip

S.No	I.P No.	Right	Left
1	671	Good	Poor
2	763	Good	Poor
3	811	Poor	Good
4	852	Poor	Good
5	948	Poor	Good
6	1086	Poor	Good
7	1177	Good	Poor
8	1214	Poor	Good
9	1234	Good	Poor
10	1320	Good	Poor
11	1420	Poor	Good
12	1863	Poor	Good
13	2239	Good	Poor
14	2296	Good	Poor
15	2505	Poor	Good
16	2526	Poor	Good
17	2532	Good	Poor
18	2832	Good	Poor
19	9	Good	Poor
20	310	Poor	Good

CASE REPORT OF TWENTY PATIENTS WHO WERE TREATED IN OUT PATIENT WARD

S.N	O.P No.	Name	Age	Sex	Date of Registration	Duration of Illness	Diagnosis	Medicine	N.O.D	Result
1	34845	Kajamuthu	55	Male	08.06.06	2 year	PV – Lt	1. Manosilai Kattu chenduram 2. Malkingini thylam	59	Moderate
2	37802	Muthu	50	Male	24.06.06	1 year	PV – Lt	- do -	57	Good
3	38568	Ayirathan	60	Male	28.06.06	18 months	PV – Rt	- do -	67	Good
4	43360	Arumugam	40	Female	22.07.06	10 months	PV – Rt	- do -	48	Good
5	46674	Gomathi	60	Male	09.08.06	10 months	PV – Rt	- do -	98	Good
6	54233	Ramuammal	70	Female	09.09.06	1 year	PV – Rt	- do -	55	Moderate
7	55620	Bagavathy	61	Male	22.09.06	4 month	PV – Lt	- do -	59	Good
8	55720	Deva Verapandi	70	Male	23.09.06	1 month	PV – Rt	- do -	49	Good
9	56712	Avudaiappan	50	Male	28.09.06	1 year	PV – Rt	- do -	48	Good
10	58291	Sankaravadivu	47	Female	06.10.06	6 month	PV – Rt	- do -	53	Good
11	58623	Paramasiva nadar	65	Male	08.10.06	1 month	PV – Rt	- do -	51	Good
12	58648	Pushba	45	Female	08.10.06	1 month	PV – Lt	- do -	50	Moderate
13	62386	Murugan	55	Male	31.10.06	3 year	PV – Lt	- do -	117	Good
14	67574	Mohammed mahapu	67	Male	24.11.06	10 month	PV – Lt	- do -	56	Partially
15	70429	Kanthan	44	Male	06.12.06	2 month	PV – Lt	- do -	44	Good
16	70446	Gunasekaran	69	Male	07.12.06	3 year	PV – Lt	- do -	43	Good
17	70781	Vairavan	52	Male	07.12.06	2 ½ year	PV – Lt	- do -	42	Good
18	72055	Kathirvel	40	Male	12.12.06	1 year	PV – Rt	- do -	38	Good
19	10635	Narayanasamy	58	Male	02.02.07	6 month	PV – Lt	- do -	22	Good
20	19299	Abubakkar	55	Male	01.03.07	8 month	PV – Rt	- do -	25	Good

EXAMINATION OF CRANIAL NERVES

S.No	I.P No.	Olfactory Nerve	Optic Nerve	Oculomotor Nerve	Trochlear Nerve	Trigeminal Nerve	Abducent Nerve	Facial Nerve	Vestibulo cochlear Nerve	Glosso pharyngeal Nerve	Vagus Nerve	Spinal accessory Nerve	Hypoglossal Nerve
1	671	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
2	763	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
3	811	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
4	852	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
5	948	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
6	1086	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
7	1177	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
8	1214	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
9	1234	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
10	1320	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
11	1420	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
12	1863	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
13	2239	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
14	2296	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
15	2505	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
16	2526	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
17	2532	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
18	2832	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
19	9	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal
20	310	Normal	Normal	Normal	Normal	Normal	Normal	affected	Normal	Normal	Normal	Normal	Normal

EXAMINATION OF POWER

[illegible]

EXAMINATION OF REFLEXES IN THE AFFECTED SIDE

SN	IP.No	Superficial Reflexes							Deep Reflexes									
		Abd	Cre	Corn	Conj	Pala	Plantar		Biceps		Triceps		Supinator		Knee		Ankle	
							Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt
1	671	+	+	+	+	+	↓	↑	I	II	I	II	I	II	I	II	I	II
2	763	+	+	+	+	+	↓	↑	I	III	I	III	I	II	I	II	I	II
3	811	+	+	+	+	+	↑	↓	I	I	I	I	II	I	III	I	III	I
4	852	+	+	+	+	+	↑	↓	I	I	I	I	II	I	II	I	I	I
5	948	+	+	+	+	+	↑	↓	II	I	II	I	I	I	I	I	I	I
6	1086	+	+	+	+	+	↑	↓	I	I	I	I	III	I	I	I	I	I
7	1177	+	+	+	+	+	↓	↑	I	I	I	I	I	I	I	I	I	II
8	1214	+	+	+	+	+	↑	↓	I	I	I	I	I	I	II	I	III	I
9	1234	+	+	+	+	+	↓	↑	I	I	I	I	I	I	I	I	I	I
10	1320	+	+	+	+	+	↓	↑	I	II	I	II	I	I	I	I	I	I
11	1420	+	+	+	+	+	↑	↓	I	I	I	I	II	I	I	I	I	I
12	1863	+	+	+	+	+	↓	↑	I	I	I	I	I	III	I	III	I	II
13	2239	+	+	+	+	+	↑	↓	II	I	II	I	III	I	II	I	III	I
14	2296	+	+	+	+	+	↓	↑	I	I	I	I	I	III	I	III	I	I
15	2505	+	+	+	+	+	↑	↓	I	I	I	I	II	I	II	I	I	I
16	2526	+	+	+	+	+	↑	↓	III	I	III	I	I	I	II	I	I	I
17	2532	+	+	+	+	+	↓	↑	I	I	I	I	I	II	I	II	I	I
18	2832	+	+	+	+	+	↓	↑	I	I	I	I	I	II	I	III	I	II
19	9	+	+	+	+	+	↓	↑	I	III	I	III	I	I	I	I	I	II
20	310	+	+	+	+	+	↑	↓	II	I	II	I	I	I	I	I	II	I

↓ Flexion ; ↑ Extension ; ↓↓ Diminished ; Not Elicitaple ; + Present
Cre - Cremastic ; Abd - Abdomen ; Corn - Corneal ; Conj - Conjuntual ; Pala - Palateral

GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL
POST GRADUATE DEPARTMENT

PALAYAMKOTTAI, TIRUNELVELI – 627 002.

BRANCH – III SIRAPPU MARUTHUVAM

ADMISSION – DISCHARGE NOTE FOR “PAKKAVAADHAM”

I.PNo. :	Name :	Occupation :	Religion :	Diagnosis :
Bed No. :	Age :	Income :	D.O.A :	Result :
Ward :	Sex :	Nationality :	D.O.D :	Medical Officer :

S.No	Important sings and symptoms of Pakkavaadham	During Admission	During Treatment						During Discharge
			After 1 week	After 2 weeks	After 3 weeks	After 4 weeks	After 5 weeks	After 6 weeks	
1	Difficulty in using right upper and lower limbs								
2	Difficulty in using left upper and lower limbs								
3	Deviation of mouth								
4	Drolling of saliva								
5	Difficult to close the eyes								
6	Difficult to speak								
7	Difficult to swallow								
8	Breathlessness								
9	Excess thirst								
10	Frequent micturition								
11	Buring sensation								
12	Giddiness								
13	Loss of weight								
14	Anaemia								
15	Pedal oedema								
16	Constipation								
17	Mental depression								
18	Pain in the joints								
19	Raise in the temperature								
20	Loss of appetite								
21	Cough								
22	Tiredenss								
23	Diminished vision								
24	Blood pressure								

+ = Present ; X = Absent ; - = Continuing ; ↑ = Increased ; ↓ = Reduced